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ORIGINAL ARTICLES.

PHYSIOLOGY OF THE PANCREAS.

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IN 1643 John George Wirsung, holding the famous chair of anatomy at Padua, reported with much detail his discovery of the duct of the pancreas. He describes its entrance into the duodenum near the biliary duct and likewise its ramifications in the body of the pancreas, and he notes that this duct, which to-day we call the duct of Wirsung, never contained blood and hence could not be an artery or vein. On the contrary, he describes it as frequently filled with a colorless fluid, but he had no conception of the function of this gland, which up to that time was classed by Malpighi along with the salivary glands, thyroid and thymus as a gland without ducts and with no particular function. Wharton the Englishman and Stenson the Dane were to come later and by their work on the structure of the submaxillary and parotid glands, the ducts of which they discovered, paved the way for a consistent theory of secretion. Stenson clearly saw that in the production of saliva, for example, the arterial blood brings matter to the gland, which in some fashion passes it on to the beginning of the duct and thus renders possible the formation of a specific secretion. He even theorized as to the way in which the nerves going to the gland might act, but he naturally lacked knowledge of the minute structure of glands and so could not formulate any detailed theory of secretion. While Wirsung had evidently seen pancreatic juice, it remained for De Graaf, a pupil of Sylvius of Leyden in 1664, to make a pancreatic fistula and thus obtain the secretion in some quantity. It is interesting to note how at this early date, after various unsuccessful attempts, he at last succeeded in accomplishing his purpose. Using the quill of a wild duck as a cannula, he opened the abdomen of a dog upon which he had previously performed tracheotomy, and after ligating the duodenum below the ducts, as well as below the pylorus, he introduced the quill into the duct of Wirsung, and as he says, obtained in one case from a large dog a full ounce of pancreatic juice in a period of about seven hours. De Graaf, it will be remembered, was a pupil of Sylvius and was no doubt greatly influenced in his opinions by the teachings of this noted physiologist. However this may be, De Graaf, in his study of pancreatic juice, made this secretion conform in composition with the conception of Sylvius that chylification was a form of acid fermentation. Although forced to rely mainly upon his sense of taste as a means of chemical analysis, De Graaf states that pancreatic juice is sometimes insipid, sometimes acid or rough, often salt, but generally acid-salt, and its use in digestion was to effervesce or to ferment with the bile. As De Graaf states, "that effervescence is excited by the mixture of pancreatic juice which abounds in acidity with bile which abounds in volatile and fixed salt, we dare all the more boldly assert, since hitherto we have met with no example of an acid spirit meeting with a lixivious salt without a manifest effervescence resulting, provided impediments are removed."[1] De Graaf, however, clearly recognized that this theory was not quite so well supported as it should be, for he himself had observed that when bile and pancreatic juice were mixed together outside of the body no effervescence could be detected. Still, he had a theory to support and, in harmony with the methods pursued by some scientists of the present day, facts were ignored and the imagination was given a free rein. So says De Graaf, "No one ought to wonder that we cannot demonstrate an effervescence between bile and pancreatic juice outside the living body, since neither artificial heat nor the natural warmth of the hand can excite such a heat as we know exists in the small intestine on account of the surroundings of the very warm viscera."[2] But neither Sylvius nor De Graaf were able to explain how this hypothetical effervescence in the intestine promoted digestion. They simply asserted that in some manner it aided or accomplished a proper separation of the useful parts of the food from the non-nutritious or useless material. The only virtue in their work and in their theories—as we look at them to-day—lies in the great importance they attached to the pancreatic juice as a factor in digestion, for it is to be remembered that their labors antedate by nearly two centuries the classical work of Claude Bernard.

But there is another chapter in this ancient history of the pancreas that must not be passed by. In 1677 Peyer made announcement of his discovery of certain glands located in the intestine, which we still call by his name, and to which he ascribed important functions as the source of a secretion having power in digestion, and he argued that it was the function of this secretion to continue the work commenced higher up in the intestine by the pancreatic juice. It was natural, therefore, under the circumstances, that doubt should arise in the minds of some as to the supreme importance of the pancreas and pancreatic juice in digestion, and in 1682 Brunner, who later filled the chair of medicine at Heidelberg, published the results of some experiments upon the extirpation of the pancreas. He operated upon dogs, but, as he says, was not able to re-

move quite all of the glands, since the extreme end of the pancreas lay so deep in the body that he could not reach it with the knife. He states that the animal usually recovered from the operation and then showed no noticeable after-effects. Its health appeared unimpaired. "It ate, drank, ran about as usual, was well nourished, and all its digestive functions were carried on normally. Obviously, says Brunner, Sylvius and De Graaf were wholly wrong in attributing the importance which they did to the digestive powers of the pancreatic juice. The animals on which I operated secreted no pancreatic juice into the intestine, the duct and nearly the whole gland having been done away with; yet they digested as usual."[3] We may well believe to-day, especially in the light of more recent experiments, that pancreatic digestion is not an absolute necessity in the nutrition of the body, but it is well to remember that in these experiments of Brunner, carried out over two hundred years before Von Mering and Minkowski made their noted observations, we have the forerunner of experiments that in this generation were to determine a relationship between the pancreas and glycosuria and make clear the existence of an internal secretion of far greater physiological importance than the secretion of pancreatic juice.

Further, as another illustration of the early anticipation of modern physiological thought, it is interesting to note that Brunner did several operations in which he first extirpated the spleen and then later the pancreas, and it is very suggestive to observe that Brunner called attention to the fact that "the animal, after recovery from the operation, made water very frequently and that he was very thirsty, drinking largely of water in proportion to the discharge of urine." One may well question whether, in addition to the polyuria Brunner observed, glycosuria was not also present.

It is passing strange that such a long time should have elapsed between these early discoveries of the seventeenth century and the epoch when true scientific advance commenced. For two centuries rival theories were bandied about, each more absurd than its predecessor; the iatrochemical school were contesting the views of the iatro-mathematical school; vitalism was at one time preëminent, only to be pushed aside by some theory equally intangible, until finally digestion gained recognition as a chemical process through the labors of Spallanzani (in 1783) and by the work of our own Beaumont in 1830. Not until 1846, however, did Claude Bernard commence his studies on the digestive power of the pancreatic juice, and not until 1856 when Bernard's "Leçons" were published was there any concise knowledge of the digestive power of this secretion. Bernard, from his own discoveries, was inclined to lay great stress upon the adipolytic or fat-digesting power of the pancreatic fluid. Amylolytic power had been practically established by Bouchardat and Sandras in 1845, while Corvisart in 1857 had clearly proved the wonderful proteolytic power of the pancreatic secretion. Since then, Meissner, Kühne, Heidenhain, Langley, Kossel, Pawlow, and a host of other physiologists have one after the other brought to light additional facts bearing upon the secretion of the pancreatic juice and upon its manifold digestive power. To-day we understand that the pancreas consists of secretory alveoli, while between these are to be found groups of other cells which clearly have a different function. The cells of the secretory alveoli manufacture and store up within themselves, in the form of granules, the antecedents of the various enzymes or ferments which give character to the pancreatic fluid.

The secretion of pancreatic juice is normally called forth by some form of stimulation, usually reflex, exerted upon the mucous membrane of the stomach and duodenum. Thus, acids brought in contact with the duodenal mucous membrane produce at once a secretion of active pancreatic juice. Alkalies, on the other hand, have no such action, and Dolwiski asserts that the acid products of gastric digestion bring about their own neutralization by inducing a flow of alkaline pancreatic juice when they pass into the small intestine. Other substances, notably ether, produce a secretion of pancreatic juice when introduced into the stomach, and no doubt many food products absorbed from either the stomach or the intestine cause a reflex secretion of pancreatic fluid.

The secretion of pancreatic juice is undoubtedly controlled by true secretory fibers, although, as in the cases of most other secretions, the vascularity of the gland exercises a very potent influence. Thus, Pawlow of St. Petersburg has pointed out that a brief stoppage of the blood-stream causes a cessation of the flow of pancreatic juice, and in anemic conditions of the gland resulting from reflex nervous influence there is a similar cessation. The gland is unquestionably extremely sensitive to vascular changes, but it is not to be inferred from this that the secretory activity of the pancreas is controlled solely by changes in vascularity. Vigorous secretion is usually accompanied by vascular dilatation and ordinarily direct or reflex vaso-constriction of the pancreas will prevent the action of the true secretory fibers. Thus, when the sympathetic is stimulated there is usually no effect upon secretion because the vaso-constrictor fibers are stimulated at the same time, but if the sympathetic nerve be cut some days previously, so that the constrictor fibers may degenerate, then stimulation of the sympathetic will be followed by a secretion of pancreatic juice. Again, as Pawlow has shown, if the vagus nerve be divided in dogs, the pancreatic nerves being intact, stimulation of the peripheral end of the cut vagus will, under certain conditions, cause a secretion from the pancreas. Further, atropine, which is well known to inhibit secretion by paralyzing true secretory fibers, tends to inhibit pancreatic secretion, while pilocarpine excites secretion from this gland. In other words, both the vagus and the sympathetic contain true secretory fibers which control in some measure at least the secretion of pancreatic juice, but these may be counteracted to some degree by

the vaso-constrictor fibers of the sympathetic. Lastly, it may be mentioned that some recent investigators, notably Popielski, claim the existence in the vagus of inhibitory fibers, antagonistic to the secretory fibers, a view which gains some support from the long latent period noticed after stimulation of the vagus, and in the fact that a secretion incited by peripheral stimulation of the vagus can later be checked by repeating the stimulation of the same nerve.

We also understand that the pancreatic juice is a strongly alkaline fluid containing an enzyme which quickly transforms starch into soluble dextrins and sugar, mainly maltose; that it contains a second enzyme having power to break up neutral fats into glycerin and free fatty acids, and, lastly, that there is present a proteolytic enzyme which transforms proteids or albuminous foods into proteoses and peptones, and these in turn into a row of simple crystalline compounds, *viz.*, amido-acids, such as leucin, tyrosin, etc., and hexone bases such as arginin, lysin, histidin, etc. Such then, briefly outlined is the character of the pancreatic juice, the product of the secretory activity of the cells of the pancreatic gland, but it would be undesirable to dwell longer upon this phase of the physiology of the pancreas, important though it may be, since recent discoveries have placed this gland in a much more prominent position, because of its plain connection with certain processes of nutrition or metabolism, of primary importance to the well being of the organism. To-day we clearly recognize the pancreas as an organ in which processes of great weight take place; an organ which clearly manufactures an internal secretion of supreme importance, or in some manner exercises a potent influence upon nutrition.

In a noteworthy paper published in 1890, Von Mering and Minkowski[4] called attention to the fact that complete extirpation of the pancreas in dogs was followed by diabetes. The excretion of sugar commences in from four to six hours after the operation, and at the end of from twenty-four to forty-eight hours reaches a high figure, as much even as 5 to 11 per cent. Even after seven days' fasting, the sugar does not disappear from the urine. Naturally, when the dog is well fed, as on meat and bread, the amount of sugar excreted is still greater. Thus, one dog of sixteen pounds body-weight secreted daily on such a diet from seventy to eighty grams of sugar for a long period. The sugar so secreted had all the reactions of dextrose. It is also to be noted that after total extirpation of the pancreas there are abnormal appetite and great thirst. This is accompanied by marked polyuria, a dog of twenty pounds body-weight excreting 1,700 cubic centimeters of urine in twenty-four hours. In spite of the increased appetite and nourishing food the animal rapidly grows emaciated, loses strength, and in three weeks after the operation the muscles are usually so weakened that the animal cannot walk. Further, it is to be noted that sooner or later, in addition to the sugar, acetone, aceto-acetic acid and oxybutyric acid are excreted, *viz.*, substances which are frequently found in the urine in severe cases of diabetes mellitus. The diabetes continues up to the death of the animal, which may occur within a week, while practically none of the dogs operated on live longer than four weeks. On postmortem examination quite noticeable in nearly all cases is the fatty condition of the liver, the fresh organ frequently showing from thirty to forty per cent. of fat.

Equally noteworthy is the lack of these symptoms when the pancreas is only partially extirpated. Under such conditions sugar does not appear in the urine, even though the larger part of the pancreas is removed.

It is evident that the appearance of diabetes in these cases is dependent directly upon the disappearance of the pancreas. Interference with the ordinary functional activity of the pancreas does not bring about diabetes. Complete occlusion of the duct of Wirsung, as by injection of paraffin into the ducts, thereby abolishing the passage of any pancreatic juice into the intestine, even when accompanied by almost complete atrophy of the gland, does not ordinarily cause diabetes. Plainly, extirpation of the pancreas leads to a change in some of the processes of metabolism in the body. As Von Mering and Minkowski suggest, two possibilities present themselves—either the pancreas normally has the power of removing or destroying some ferment or toxic substance, the retention of which in the organism causes an excretion of sugar, or it is normally a function of the pancreas to regulate the consumption of sugar in the body. In any event, we have here a new function of the pancreas which is well worthy of closer study.

As one scrutinizes the various results obtained by many investigators in this field during the past few years, it seems probable that in the pancreas there must be located certain specialized cells which manufacture an internal secretion; something which exercises a controlling influence upon certain lines of metabolism in the body. When this internal secretion is wanting, one of the balance wheels is gone and there result disturbance and distortion of the nutritional rhythm. For it must be remembered that in dogs with the pancreas completely extirpated and with a complete exclusion of carbohydrate food from the diet the excretion of sugar still goes on, and furthermore bears a certain distinct ratio to the nitrogen excreted through the urine.[5] In other words, under the above conditions, the amount of sugar excreted bears a direct ratio to the amount of proteid or albuminous matter decomposed in the body. The ratio of dextrose to nitrogen in the urine is approximately as 3:1, and it is evident from many experiments that after complete extirpation of the pancreas practically all of the sugar that results from the breaking down of proteid is excreted through the urine. The body is not able to utilize any of it. This inability of the body to utilize sugar under these conditions applies equal-

ly to sugar that may be introduced with the food. Let me illustrate this statement by citing an experiment reported by Minkowski.[6] A dog weighing about twenty-eight pounds with pancreas extirpated and on a meat diet excreted through the urine on the seventh and eighth days after the operation 53 grams and 58 grams of sugar respectively. On the following day 75 grams of dextrose were given with the food, when the excretion of sugar through the urine rose at once to 144 grams for the day. Two days after this, on the meat diet alone, the sugar excreted by the urine fell to practically the original amount, *viz.*, 54 grams.

Especially interesting are the experiments recorded by various workers on the transplanting of pieces of pancreas under the skin. When such pieces are well grafted, then the entire pancreas of the animal can be removed from the abdominal cavity without the appearance of diabetes. When, however, the engrafted pieces of pancreas are cut away, glycosuria speedily shows itself. So here, again, we find evidence that no direct connection exists between the ordinary secretory function of the pancreas and that other function which has to do with the utilization of sugar by the body.

If we examine more closely the experimental data which have been gradually accumulated during the past six or eight years, we find additional light thrown upon the problem, although it does not afford a concise explanation of the cause of pancreatic diabetes. In the first place, we are certainly justified in saying that the glycosuria resulting from extirpation of the pancreas is not wholly due to increased transformation of the glycogen stored up in the liver and other tissues. Directly after the operation the sugar which appears in the urine undoubtedly comes from conversion of the hepatic glycogen, but, as already stated, the excretion of sugar continues at a high rate long after the glycogen of the body has entirely disappeared. Further, the ratio of sugar to nitrogen in the urine is such as to point conclusively to the origin of the sugar in proteid. In this respect, therefore, pancreatic diabetes resembles phloridzin diabetes. It differs from the latter, however, in that when the pancreas is completely removed the sugar of the blood is greatly increased, followed by the appearance of sugar in the urine. In phloridzin diabetes, on the contrary, there is no noticeable increase of sugar in the blood, although the urine may contain large quantities of sugar. When the floor of the fourth ventricle is punctured, temporary glycosuria results, and in this case there is a marked increase in the sugar of the blood, thus showing an analogy to pancreatic diabetes. Probably in both puncture diabetes and pancreatic diabetes this initial rise of sugar in the blood is connected with increased transformation of hepatic glycogen, while later on the sugar in pancreatic diabetes comes from the breaking down of proteid. It has been claimed by some physiologists that under normal conditions the pancreas exerts its influence upon carbohydrate metabolism by aiding in some manner the oxidation of sugar in the tissues of the body, or else by influencing the conversion of the sugar brought by the portal blood into the glycogen of the liver. While one or perhaps both of these views may be correct, it is manifest that complete loss of the pancreas leads to much more than a mere disturbance of the relationship between sugar and glycogen formation. Some other explanation must be offered to account for the steady breaking down of the tissue proteids after removal of the pancreas. Moreover, the view that the glycosuria is due to the absence from the blood of the glycolytic ferment normally present there is equally untenable, since, as Minkowski has shown, removal of the pancreas does not change in any degree the glycolytic power of the blood. Again, it has been found that, so far as can be observed, the blood of an animal from which the pancreas has been removed shows no accumulation of toxic substances; in any event, such blood has no power of rendering another animal diabetic. This fact, of course, stands opposed to the theory that it is normally the function of the pancreas to remove from the blood toxic substances formed in the body, and that the cause of the diabetes resulting when the pancreas is removed is due to an accumulation of such toxic bodies. Another fact of importance just here is that feeding raw pancreas does not check or prevent the usual symptoms attendant upon complete extirpation of the gland. The case is evidently quite different from what occurs in thyroidectomy, where feeding of thyroid is effective in counteracting the removal of the thyroid glands. It is plain, however, that there is something belonging to the pancreatic glands which is instrumental, directly or indirectly, in controlling the formation or utilization of sugar in the body.

To a physiological chemist, the auto-intoxication theory of pancreatic diabetes seems especially plausible, and although the facts to uphold such a theory are not very numerous, and those presented lack confirmation, yet the theory is perhaps worthy of consideration. In this connection it is to be remembered that Gaglio[7] some years ago claimed that excision of the pancreas was not followed by diabetes if the thoracic duct were ligated, and further that ligature of the thoracic duct checked the glycosuria produced by extirpation of the pancreas. Lépine[8] and Biedl,[9] on the other hand, claim that ligature of the thoracic duct tends to increase, instead of checking, the glycosuria caused by excision of the pancreas, and Biedl further states that a pre-existing glycosuria can be inhibited by the injection of thoracic lymph. With this utter lack of harmony the truth seems beyond reach, but now comes Tuckett[10] with the hypothesis that the pancreas has an internal secretion which enters the circulation constantly, *via* the thoracic lymph, and also that a toxic substance capable of causing glycosuria, if not neutralized by the former, is absorbed from the intestine during digestion, *via* the lymph-

stream. The hypothesis further supposes that the thoracic lymph contains a large quantity of the aforesaid toxin during digestion, but none at other times, whereas only a small quantity of the internal secretion from the pancreas is ever present in the thoracic lymph, although the blood always contains a relatively large quantity, as it tends to accumulate there continuously. Tuckett rests his theory upon the following observations: He finds that if the thoracic lymph from a fasting dog be injected into the portal circulation of a cat, no hyperglycemia or glycosuria results, but that if lymph from a digesting dog be injected into the portal circulation a hyperglycemia of a degree varying from 0.3 per cent. to 0.9 per cent. is produced and a glycosuria of a degree varying from 1 per cent. to 9 per cent. He also reports that the injection of thoracic lymph from a digesting cat into its own splenic vein results in marked glycosuria, due, as he thinks, to a large dose of the hypothetical toxin acting on the liver at one time, before it can be neutralized by the internal secretion from the pancreas. Gley,[11] it will be remembered, has found that glycosuria results after ligating the veins of the pancreas, and Tuckett finds that the mere injection of a few bubbles of air into the splenic vein is followed by pronounced glycosuria, the air accumulating chiefly in the splenic and superior pancreatic-duodenal veins. This glycosuria, he thinks, is really due to the same cause as that produced by Gley, *viz.*, by an impeding of the venous return through the pancreas, thus checking the outflow of the internal secretion from the gland, and thereby allowing the toxin to accumulate in the blood. This ingenious theory, which seems to have some foundation in fact, we cannot follow further, but it is well worthy of more careful study.

As has already been stated, there are to be found in the pancreas groups of cells, known as the islands of Langerhans, which are not connected with the lumen of the ducts of the gland, and which are evidently not concerned with the manufacture of pancreatic juice. These cells are surrounded by or intermingled with a rich network of capillaries, and from their structure and their environment the view has been advanced that these cells, or groups of cells, furnish an internal secretion which is passed on into the blood and lymph. There is certainly a close resemblance in architecture between the islands of Langerhans and that of other ductless structures, such as the thyroid, suprarenal and similar glands, and various writers, as Schäfer,[12] Diamara[13] and Laquesse[14] have put forward the view that the influence exerted by the pancreas on carbohydrate metabolism is to be traced to these groups of cells. Ssobolew[15] has indeed pointed out that the cells composing the islands of Langerhans undergo a change of structure—becoming more granular—when animals are fed on a carbohydrate diet, and he has also observed that in dogs on ligating the duct of Wirsung the islands of Langerhans are not involved in the sclerotic process that ensues. Opie[16] has likewise observed in human cases when obstruction of the duct has occurred that the islands are resistant to the inflammation which usually follows. All this of course is construed as indicating the physiological individuality of the cells composing the islands, and as perhaps suggesting that they alone have to do with carbohydrate metabolism. Opie,[17] who has made a careful study of the histological structure of the pancreas in man and in animals, states distinctly that the cells composing the islands are independent of the secreting apparatus of the pancreas, and are in intimate relation with the vascular system. Later,[18] he is led to the conclusion from the observation and examination of cases in the Johns Hopkins Hospital and Pathological Laboratory that destruction of the islands of Langerhans is associated with diabetes mellitus. This statement may perhaps be amplified by the assertion that whenever there is a lesion of the pancreas, involving a destruction of the islands of Langerhans, diabetes results. Finally, I may call attention to the work of Flexner on "Experimental Pancreatitis."[19] This investigator finds "that pancreatitis follows upon a variety of insults to the pancreas, and is capable of developing with great rapidity. The introduction of such a foreign body as artificial gastric juice into the pancreas gives rise to degeneration, hemorrhage and emigration of leucocytes within the brief space of one to two hours." Also, "fat necroses attend all forms of pancreatitis and are more numerous and widespread the more acutely the pancreatic lesions develop." Flexner likewise calls attention to the rapidity with which glycosuria develops after these insults to the pancreas. Thus, in one experiment, when defibrinated blood (20 c.c.) was injected into the duct of Wirsung of a dog, the urine showed sugar in thirty minutes. In my own laboratory, the injection of defibrinated blood from a dog into the duct of Wirsung of the same animal has been followed by the appearance of sugar in the urine within fifteen minutes from the beginning of the injection, the urine in this case being collected through cannulæ previously introduced into the ureters.

There are undoubtedly many ways in which glycosuria results, many causes leading to the temporary and continued appearance of sugar in the urine. The injection into the blood of β-nucleoproteid, as Ivar Bang[20] has recently shown, leads to the excretion of sugar in the urine, and, as the proteid likewise causes a marked though temporary fall of blood-pressure, the cause of the glycosuria may perhaps be sought for in some localized change of vascularity. Finally, in this connection, it is worthy of note that Blum[21] has just recorded the presence in the suprarenals of a substance which on introduction into the circulation produces glycosuria; a substance which is effective not only when the liver of the animal is stored with glycogen, but also when the hepatic cells are free from carbohydrate, as in hunger.

In conclusion, I may add that while the pan-

creas has this marked influence upon the metabolism of carbohydrate matter, and while disturbance of the gland, or any insult offered to it, may result in temporary or permanent glycosuria, there are indications that some forms of so-called pancreatic diabetes are to be explained, not through a simple disturbance of the pancreas, but rather as the result of a physiological disturbance of the inter-relationship of several allied glands or structures.

BIBLIOGRAPHY.

[1] Foster. Lectures on the History of Physiology, 1901, p. 156.
[2] Foster. Loc. cit., p. 156.
[3] Foster. Loc. cit., p. 163.
[4] Von Mering and Minkowski. Diabetes Mellitus nach Pankreasextirpation, Archiv f. exp. Path. u. Pharm., Bd. 26, p. 371.
[5] Minkowski. Untersuchungen über den Diabetes Mellitus nach Extirpation des Pankreas, Archiv f. exper. Path. u. Pharm., Bd. 31, p. 85.
[6] Ibid., Bd. 31, p. 105.
[7] Gaglio. Bolletino delle Scienze Medichi di Bologna, 1891, p. 113.
[8] Lépine. Annales de Médecine, 1891.
[9] Biedl. Centralbl. f. Physiologie, 1898, p. 624.
[10] Tuckett. Journal of Physiology, 1899, Vol. XXV., p. 63.
[11] Comptes Rendus, 1891, CXII., p. 752.
[12] Schäfer. Lancet, 1895, Vol. II., p. 321.
[13] Diamare. Internat. Monatschr. f. Anat. u. Phys., 1899, p. 155.
[14] Laquesse. Comptes Rendus Soc. de Biol., 1893, p. 819.
[15] Ssobolew. Centralbt. f. Allgem. Path. u. path. Anat., 1900, Bd. XI., p. 202.
[16] Opie. Jour. of Exper. Medicine, 1901, Vol. V., p. 398.
[17] Opie. Loc. cit., p. 399.
[18] Opie. The Relation of Diabetes Mellitus to Lesions of the Pancreas, Jour. of Exper. Medicine, 1901, Vol. V., p. 529.
[19] Flexner. Johns Hopkins Hospital Reports, Vol. IX.; also Univer. of Penn. Medical Bulletin, Aug., 1901.
[20] Bang. Zeitschr. f. phys. Chem., Bd. XXXII., p. 218, 1901.
[21] Blum. Deutsches Archiv f. klin. Med., Bd. LXXI., p. 146, 1901.

SOME ASPECTS OF THE PATHOLOGY OF THE PANCREAS FROM THE STANDPOINT OF RECENT INVESTIGATION.

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IT is obviously impossible in one paper to cover satisfactorily the ground of the pathology of the pancreas. It would seem more desirable, therefore, to limit ourselves to the discussion of some phases of pancreatic disease in which recent research has been fruitful. I therefore purpose to take up from the standpoint of the more recent work (1) the relation of lesions of the pancreas to diabetes; (2) the conclusions to be drawn from recent studies of acute hemorrhagic and suppurative pancreatitis as regards the etiology of these conditions and their relation to gall-stone disease, to chronic intestinal pancreatitis, and to fat necrosis.

Our knowledge of the results of disease in an organ is necessarily dependent on our knowledge of the intimate structure and function of that organ. In the consideration of diabetes it is particularly necessary to remember that the pancreas is a much more complicated structure than are the salivary glands which it resembles. The well-known researches of Langerhans showed that the pancreatic tissue consists of two distinct classes of parenchymatous structure, the ordinary gland acini which secrete the digestive juices of the organ and empty into the pancreatic ducts, and the so-called islands of Langerhans, which differ in appearance and structure from the ordinary gland acini. Ssobolew, Opie, and others have shown that, though we have every reason to believe that the islands of Langerhans have the same origin as the ordinary gland tissue, during extra-uterine life they have no connection with the secreting portion of the gland. Opie shows that they have no connection with the excretory ducts of the organ and that their cells are in intimate relation with the blood-supply, each island being furnished with a vascular arrangement somewhat similar to that of a kidney glomerulus. Without going deeply into the subject of the relation of the pancreas to metabolism I would simply remark that the relation of the organ to carbohydrate digestion suggests that it possesses an internal secretion. Schafer and Diamase first suggested that it is the islands of Langerhans which provide this secretion, a view which is strongly upheld by Ssobolew and Opie.

The modern conceptions of the relation of the pancreas to diabetes date from the classical experimental work of Von Mering and Minkowski. The observations of these workers, since abundantly confirmed, showed that in dogs the total extirpation of the pancreas regularly gave rise to a disease resembling in every way diabetes mellitus as seen in the human subject. Some writers, as Reale and De Renzi, could not confirm the statement that these symptoms followed in all cases, but practically all competent observers concede their occurrence in the great majority of dogs from which the pancreas has been removed. Experimental work by various authors has likewise shown that partial extirpation is followed by glycosuria or a mild form of diabetes, an indication that in man also mild grades of diabetes may be due to pancreatic disease. When from one-quarter to one-fifth of the gland is left no glycosuria ensues. That the experimental diabetes following total extirpation of the pancreas is not due to the injury to neighboring nervous structures is shown by the fact that its development can be hindered by the transplantation of pancreatic tissue beneath the skin of the abdominal wall. Inasmuch as in these cases the normal secretion of the pancreas is not discharged into the digestive tract, this also shows that diabetes is not due to a lack of the pancreatic juice and renders probable the supposition that, besides the pancreatic juice, the pancreas furnishes an internal secretion.

Satisfactory as are these experimental data, many puzzling problems confront us in the study of the pancreas in human beings who have come to autopsy after death from diabetes. Aside from those cases which are evidently due to lesions in the medulla, we find that the study of the pancreas in the remainder shows two groups of cases which are difficult of explanation. On the one hand, we have a good many cases of diabetes without perceptible pancreatic lesion, and, on the other, cases of complete destruction of the pancreas without diabetes.

Of 88 cases of diabetes collected by Hansemann, Bloch and Oser, 28 showed no demonstrable pancreatic lesion. These same writers collected 139 cases of extensive pancreatic disease without diabetes.

The recent work of Ssobolew, Wright and Joslin, and particularly of Opie, throws a good deal of light on the apparent contradictions which these figures suggest. It is undeniable that in their microscopic studies of the pancreas the earlier writers paid little attention to the condition of the islands of Langerhans. If, as is now supposed, these structures play an important part with regard to the internal secretion of the pancreas, it becomes at once apparent that their condition is of extreme importance. The work of Opie and of Wright and Joslin has, in fact, shown that in a certain proportion of cases of diabetes the islands of Langerhans are extensively changed, while the great mass of the gland is to all intents and purposes normal. I have myself recently studied a pancreas from a case of diabetes kindly sent to me by Dr. Libman of New York in which practically the only change found in the organ was the hyaline degeneration of the islands of Langerhans described originally by Opie. Is it not fair to assume that, in a certain proportion of the cases described by the older writers as without pancreatic lesion, these changes were present? The experience of Wright and Joslin, who found such changes twice in nine cases, would indicate, however, that all such observations cannot be explained in this way; the recent work of Schmidt would also indicate this.

The work of Opie on interstitial pancreatitis also explains why in this class of cases very extensive destruction of glandular tissue may occur without diabetes. He classifies interstitial pancreatitis into an interlobular and an interacinar form. In the interlobular, even when the disease has involved the greater portion of the organ, the islands of Langerhans are not involved. In the interacinar form they are gradually encroached upon and destroyed by the newly-formed connective tissue, but even here it is only late in the disease that they become extensively involved.

Some of the cases in which, to the naked eye, there is apparently complete destruction of the pancreas by a neoplasm and yet no diabetes has been shown under the microscope, by Hansemann particularly, still to contain areas of pancreatic tissue; but whether in such cases the islands of Langerhans are especially spared remains to be shown. In other instances in which the complete replacement of pancreatic tissue by new growth is demonstrated, both macro- and microscopically, and yet diabetes does not occur, explanation is more difficult. Hansemann has advanced the idea that the tumor cells, being direct descendants of the pancreatic cells, inherit from them the power of elaborating an internal secretion. Oser does not consider this theory convincing, but after all it does not seem so far-fetched, inasmuch as we are already acquainted with instances of tumor cells elaborating secretions of the character of those supplied by the organs from which they sprang. Niedrich, Bock and Thoma have all described metastatic adenomata of the liver in which a substance resembling bile was secreted by the tumor cells. In Bock's case this substance was chemically examined and found to contain large quantities of biliverdin. It would be interesting to observe in pancreatic tumors whether any type can be differentiated which has the appearance of originating from the cells of the islands of Langerhans, rather than from the glandular structure or the epithelium of the ducts. It would seem possible that the question of the production of an internal secretion by the cells of pancreatic tumors could be cleared up by the physiological chemist.

It seems evident that the study of the islands of Langerhans in diseases of the pancreas, and in diabetes particularly, is yet in its infancy, or at least in its childhood, and it is reasonable to hope that further study will render still more clear this hitherto obscure field.

The subject of the relation of the various forms of pancreatitis to one another and to various etiological factors has until recently been more or less obscure and has given rise to numerous hypotheses. Leaving aside metastatic suppurative pancreatitis, which is obviously the result of a general septico-pyemic condition, the various authors writing on primary pancreatitis have had before them for elucidation the following problems: (1) The relation of pancreatitis to bacterial action and to chemical irritants; (2) the relation of pancreatitis to gall-stone disease; (3) the relation of hemorrhagic pancreatitis to suppurative and necrotic pancreatitis; (4) the relation of all forms of acute pancreatitis to chronic pancreatitis and to fat necrosis.

It is obvious that in order to trace, step by step the mechanism of the various processes under consideration it was necessary to resort to the experimental method.

Injection of various bacteria either into the duct of Wirsung or into the parenchyma of the pancreas has resulted in many instances in pancreatitis, rarely hemorrhagic, generally suppurative or of a chronic inflammatory character. Various micro-organisms have produced these effects, the most important being the diphtheria bacillus (Hlava, Flexner), the colon bacillus (Hlava), and the bacillus pyocyaneus (Flexner). These experiments merely indicate the possibility that in some human cases an ascending infection by means of the pancreatic ducts may account for certain forms of pancreatitis.

The production of pancreatitis by means of chemical irritants dates back to the time of Claude Bernard, who produced experimental suppurative pancreatitis by the injection of quicksilver into the ducts. Since his time various chemicals of an irritant nature have been injected by various observers. Korte used turpentine, Carnot chloride of zinc, and Katz and Winkler sulphuric acid. This aspect of the subject was mostly thoroughly worked out by Flexner, who used a large variety of irritating chemicals, some acids, some alkalies and still others intensely irritating substances, such as formalin. The results of these various experiments may be briefly summed up by stating that all forms of pancreatitis were produced by the action of one or the other of the chemicals used.

Regarding the relation of chemical irritants to human pancreatitis, a step in the right direction was taken by Hlava when he suggested that in individuals with a hyperacid gastric juice this might be carried up the pancreatic ducts by antiperistaltic movements and set up pancreatitis. He as well as Flexner and Carnot, showed that artificial gastric juice injected into the ducts produced well-marked pancreatitis. In spite of the attractiveness of Hlava's theory, the chances that such a mechanism can occur in human beings seems extremely slight. Nevertheless, the principle that pancreatitis in human beings can be produced by the introduction into the pancreatic ducts of chemical substances normally secreted by the body cells has recently been placed upon a firm basis by Opie.

Opie's observations were based upon a patient with gall-stones in whom hemorrhagic pancreatitis developed. At autopsy it was found that a small stone lodged in the ampulla of Vater had blocked the orifice of that portion of the duct common to the bile and pancreatic juice, but had not shut off the lower end of the common bile duct or of the pancreatic duct. As a result of this the bile and pancreatic ducts formed a continuous passage, the latter duct showing evidences that bile had been present in it in the form of bile-staining, a result which, as Opie has pointed out, might be expected on account of the fact that the bile is under greater pressure than is the pancreatic juice. As a result of this observation, as well as of the knowledge of quite frequent association between gall-stones and pancreatitis, Opie conceived the idea that bile is capable of setting up a hemorrhagic pancreatitis. A study of the literature on the pathology of hemorrhagic pancreatitis showed that the majority of the recently reported cases showed gall-stones, and the anatomical relations of the two ducts are known to be such that a small stone in the ampulla could in a certain percentage of cases block the external orifice in the papilla without obstructing the intestinal end of either duct. Opie's suggestion that the bile could set up hemorrhagic pancreatitis was proved experimentally by himself and has since been confirmed by Flexner.

The great point of dispute regarding the relation of hemorrhagic lesions of the pancreas to inflammatory lesions has been with regard to the priority of the two processes. Until the recent work of Flexner and Pearce the question as to whether the hemorrhage or the inflammatory processes occurred first has been in doubt. The experiments of these authors show without doubt that hemorrhagic, degenerative and inflammatory lesions are all correlated; the several phenomena may all occur at the same time, and that only a few hours after the action of the irritant. The experiments further show that the presence of blood alone in the pancreatic tissue is incapable of setting up inflammatory reaction.

The relation of these various forms of acute pancreatitis to chronic interstitial pancreatitis can be summed up in a few sentences. Both experimental and postmortem observations seem to show that when animals or individuals recover from the direct effects of the various irritants discussed, the connective tissue of the pancreas proliferates, newly formed connective tissue is produced and a chronic induration of the organ results. There seems no doubt that in many cases of cholelithiasis a quantity of bile insufficient to cause extensive lesions frequently escapes into the pancreas, and that the well-known induration of the head of the pancreas, which has been so frequently observed by surgeons in gall-stone operations, is the result. In one case at least Mayo Robson has demonstrated this on the postmortem table.

There remains for our consideration the subject of fat necrosis and its relation to these various processes. The more prominent of the older theories regarding the formation of this form of cell death assumed the lesion as due either to the action of bacterial products or to that of trypsin. The relation of bacteria to fat necrosis has been most carefully studied within the last year by Marx. He concludes that the evidence against the production of fat necrosis by bacteria is very strong. The presence of micro-organisms in fat necrosis is inconstant, and those generally found are organisms known to wander into the tissue postmortem. Furthermore, attempts to produce fat necrosis experimentally by means of bacteria or their products have been almost uniformly unsuccessful. The results of experimental work with trypsin have likewise been many of them negative. It can now be safely said that the demonstration that the action of steapsin, the fat-splitting ferment of the pancreas, is the true cause of fat necrosis is convincing. The presence of this ferment in the lesions of fat necrosis was first demonstrated by Flexner, and his observations have since been confirmed by Opie and others.

The histology of these lesions has also been carefully worked out in this country by Williams, Flexner and Opie. The lesion consists in a splitting-up of the fat into glycerin and fatty acids, the former being absorbed, the latter entering into combination with lime salts to form a soap. Surrounding the area of necrosis is found a zone of inflammatory reaction of the tissues. While these researches do not absolutely reveal the mechanism of the distribution of the steapsin, which may act on fat so distant even from the pancreas as the pericardial fat, they simplify greatly the relationship between disease of the pancreas and fat necrosis in that they show that any pancreatic lesion which allows of the escape of the fat-splitting ferment may give rise to fat necrosis.

REFERENCES.

Flexner. Journal of Experimental Medicine, Vol. II., No. 4, 1897.
Johns Hopkins Hospital Reports, Vol. IX. (Welch's Festschrift.
Flexner and Pearce. University of Pennsylvania Medical Bulletin, Vol. XIV., No. 6.
Opie. Johns Hopkins Hospital Bulletin, Vol. XII., Nos. 121, 122, 123, 1901. Johns Hopkins Hospital Reports, Vol. IX (Welch's Festschrift). Journal of Experimental Medicine, Vol. V., Nos. 4 and 5, 1901. American Journal of the Medical Sciences, January, 1901.
Oser. Die Erkrankungen des Pankreas. Northnagel's Specielle Pathologie und Therapie. 1899.
Marx. Virchow's Archiv, Bd. 165, Heft 2, 1901
Williams. Boston Medical and Surgical Journal, April 15. 1897.

HEMORRHAGIC PANCREATITIS; OPERATION; RECOVERY.

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SIR THOMAS WATSON, writing in 1857, in the fourth edition of his "Principles and Practice of Physic," dismisses the subject of diseases of the pancreas with a scant fourteen lines. To-day the story of the physiology and chemistry of the pancreas forms a most fascinating chapter; and the amount of clinical and pathological work already done marks a real advancement in medicine. The literature of pancreatic surgery, however, is small but growing, and as a contribution to this part of the subject I wish to record the following case:

T. D., forty-one years old, an employe in a leather factory, was first seen by me September 24, 1901. His family history is unimportant. Six years ago he had an illness lasting eight days which began suddenly with pain in the abdomen; there was no vomiting, but the pain was severe all one night and was relieved by a movement of the bowels. About fifteen years ago he had attacks of pain, due, his physician told him, to gall-stones; the pain was never severe and yielded promptly to medicine. He was never jaundiced. He drinks occasionally, but was never an habitual user of beer or spirits. The present illness began suddenly on the afternoon of September 17th. While at his work he was taken with severe pain in the abdomen, accompanied by nausea and vomiting. A physician was called, who gave him morphine hypodermically and ordered him sent home. From the 18th to the 24th there was continued fever ranging from 100 to 102°F., and a pulse-rate of about 100. The bowels were constipated, but there was no further vomiting; there was some nausea and some eructation. He had been given cathartics and high rectal injections, the case having been at first looked upon as one of fecal obstruction. The urine was diminished in amount, but contained neither albumin nor sugar. On the 24th the temperature and pulse were as just noted, and there was anxious expression, pain and tenderness in both iliac regions and across the upper part of the abdomen, but no distinct dulness and no marked distention. The pain was rather more severe in the region of the transverse colon than in the flanks. I did not make a diagnosis, but from the history of the case, the mode of onset, etc., was inclined to regard it as a general peritonitis, probably originating in the appendix. On the 26th the record at 9 A.M. was: Pulse 102, temperature 100.5° F. At 3 P.M. there was a sudden and severe exacerbation of pain, and an hour later well-marked symptoms of shock and collapse—pale, pinched face, cyanotic lips, and pulse of 150 and weak. At this time the abdomen seemed somewhat flat and there was noticed for the first time some enlargement in the epigastric region. On the 27th, the pulse was 123, temperature 100.2° F. Until the 30th his condition remained about the same—no vomiting, no appetite; pulse 100 to 112; pain almost constant, but not severe, and most marked in the region of the transverse colon. The tumor-like mass in the epigastrium was persistent and tender, easily palpable, and visible upon careful inspection; there was dulness upon percussion, beginning just above the umbilicus and seemingly continuous, with the liver dulness above and to the right. At a second visit upon this date I could get with fair distinctness a resonant or tympanitic note between the tumor and the left lobe of the liver above. With this ability to separate the mass from the liver there came the thought of pancreatitis, and with a careful review of the history of the case the diagnosis of hemorrhagic pancreatitis was made and operation advised.

Operation October 1st. The abdomen was opened by a median incision over the tumor. The omental vessels looked darker and more congested than normal, and minute masses of fat necrosis in considerable numbers were visible in the omentum and were also found in the mesentery. With the abdomen open the tumor seemed smaller and less distinctly circumscribed than was apparent upon examination before incision. The stomach and transverse colon were easily recognized and separated and the omentum was opened between them; the pancreatic tumor was then bluntly dissected through in about the middle line. Masses of dark blood-clot presented, together with some necrotic masses of gland tissue. The cavity in the pancreas was washed out with salt solution, the amount of blood-clot removed being estimated at from six to eight ounces in volume. The cavity seemed to be somewhat smooth-walled and larger to the right (head of the pancreas). There was no hemorrhage. The wound was dressed with a rubber drainage-tube and gauze packing. Following the operation there was a gradual improvement in the patient's general condition. During the first ten to fourteen days the discharge was profuse and frequently contained evident necrotic portions of gland tissue with large and small masses of necrotic fat; later the discharge became more evidently purulent. The abscess cavity still seemed large, elongated horizontally, and dipping down on either side of the large vessels. On November 8th the patient left the hospital. There was still a slight evening rise of temperature; the sinus was unhealed and contained a drainage tube, and the wound was dressed every day at home. The drainage of the sinus was not good, however, and on the 18th of the same month he was readmitted to the hospital with a temperature of 103.8° F. and pulse of 120. On the 20th the sinus was enlarged and a new sinus, or branch of the original one, extending to the left toward the tail of the pancreas, was entered and drained. By December 3d the pulse and temperature were normal and by January 16th the wound was entirely healed.

The diagnosis of this case should have been made earlier. It seemed clear enough—clearer

than most cases, perhaps, when once it had been thought of. The second attack of severe pain with collapse, indicating probably a second hemorrhage, and the coincident discovery of the tumor, should have suggested the diagnosis. The tumor dulness, however, being most of the time continuous with the liver dulness above and toward the right and left, seemed to call attention to the liver rather than to the pancreas.

Reviewing the history of the case after operation the thought of *ample drainage* is the one to be most emphasized; in draining such a cavity as here existed the external opening left for tubes and packing should be of goodly extent and a tube should be passed down to both extremities of the cavity. Another minor point which seems worth mentioning is the character of the drainage-tubes. After the first dressing, instead of the ordinary rubber tubing with cut-off ends, I used the ends of stomach tubes; these furnished tubes of good size and with smooth rounded ends. In a recently-reported case of a somewhat similar operation, there was found at autopsy an opening from the sinus into the duodenum, which was thought to be due to a pressure necrosis from the drainage-tube.

THE SIGNIFICANCE OF GLYCOSURIA.*

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THE significance of glycosuria can best be comprehended by a discussion of its pathogenesis. I shall consider all forms of glycosuria under two headings, transient glycosuria and the glycosuria of diabetes mellitus, as all forms can not come within the scope of this paper.

By the term transient glycosuria we understand the temporary appearance of glucose or grape-sugar in the urine, usually in small quantity. When sugar appears it is derived as such from the blood. Normally the blood contains a small but constant proportion of sugar, 0.1-0.2 per cent., and when this amount is exceeded there is an overflow into the urine. Whether normal urine contains minute traces of sugar is a moot point. The reaction for sugar with normal urine is not obtained except after concentration by evaporation. Hence for clinical purposes we may assume that normal urine is sugar-free.

The causation of the majority of cases of glycosuria will remain a matter for conjecture until the disposition of sugar in its entirety in the organism and the control of this disposition become known.

Transient glycosuria is a symptom of some temporary interference with the usual disposition of sugar in the body or of its excessive ingestion. The following varieties may be recognized: (1) Alimentary; (2) toxic; (3) forms associated with diseases and injuries.

1. *Alimentary.*—The sugar which reaches the liver from the intestines through the portal vein is converted by the activity of the hepatic cells into glycogen. Thence it passes out, a little at a time, reconverted into dextrose, into the general circulation. This, in brief, is the glycogenic function of the liver. Within varying, though wide, limits, the liver can dispose of only a given quantity of sugar. It is in this manner that alimentary glycosuria arises and it is not of infrequent occurrence in persons who indulge to excess in starchy and saccharine foods. The excessive ingestion of cane-sugar produces saccharosuria, associated in the majority of instances with glycosuria. Cane-sugar, grape-sugar, and milk-sugar, taken in quantities of from 50 to 250 grains, pass directly into the urine, causing temporary glycosuria (Worm-Mueller). Linnoissier and Rogue experimented on nineteen healthy individuals, confirmed the above results and found that cane-sugar passes more readily into the urine than grape-sugar, and grape-sugar more rapidly than milk-sugar. Howell states, however, that the limit of assimilation of milk-sugar is soon reached in the human adult and that it readily passes into the urine unchanged (lactosuria).

The lactosuria which is present at times in pregnant and nursing females must be classed under the heading alimentary, since it occurs because the milk sugar which is formed in the breast is reabsorbed into the circulation. Glycosuria is especially likely to occur in nurslings with digestive derangements (Grosz).

2. *Toxic Glycosuria.*—This term will include those conditions of the urine which occur not infrequently after the administration of certain remedial agents in which either sugar itself is present or some substance which responds similarly to many of the tests for sugar, and which might thereby lead to erroneous deductions. The subject presents a wide field for research.

It seems well assured that in certain instances the reducing agent is not sugar. Chloroform, chloral and arsenic *per se* reduce Fehling's solution. Chloroform and arsenic are excreted in the urine as such. The minimum amounts of chloroform, chloral and arsenic which give a slight reaction with Fehling's solution are about 2 c.c. of solutions containing from 0.1-0.15 per cent. of these substances. It is probable that the glycosuria reported as occurring after their administration is the result of faulty observation. Moreover, glycuronic acid is present in the urine after chloroform narcosis, which in itself reduces Fehling's solution. Chloral is rarely found in the urine or occurs only in traces. It is eliminated as urochloralic acid. This acid, however, will reduce Fehling's solution. After the administration of morphine and curare the urine contains glycuronic acid.

The following substances are stated to produce actual glycosuria as a result of their action in the body: Ether by inhalation, amyl nitrite, mercury, hydrocyanic acid, sulphuric acid, alcohol, glycerin, strychnine and nitrobenzol. Phlorizin produces temporary glycosuria, according to Von Mering, by causing such changes in the renal cells

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that they are no longer able to hold back the sugar normally present in the blood. The exhibition of thyroid substance may also produce glycosuria.

The glycosuria occurring among those who have worked long in lead is believed to result from the direct action of the lead on the renal cells.

3. *Glycosuria Associated with Diseases and Injuries.*—All forms of transient glycosuria which are met with during the course of or following general disease, or which result from injuries, derangements or diseases of the nervous system will be included under this heading.

Von Mering has shown by direct examination of the blood of the portal vein that the sugar formed from the carbohydrates in the alimentary tract is absorbed by the blood-vessels under normal conditions. In cases of portal thrombosis glycosuria occurs if there is any digested starch in the intestine. The glycogenic function of the liver is not called into play, the sugar passes unchanged through vessels other than the portal into the general circulation, and is excreted by the kidneys.

According to Hoffmeister, the function of sugar assimilation may be depressed in certain diseases, so that when sugar is taken as a food it appears temporarily in the urine. This happens especially in hepatic fibrosis. Transient glycosuria may occur at times as a result of digestion derangements and in chronic gastritis (Frerichs).

Transient glycosuria not infrequently occurs in the course of, or following many of the infectious diseases. Thus sugar may be found in the urine in cerebrospinal meningitis, Asiatic cholera, typhoid fever, etc. Transient glycosuria occurs occasionally after asthmatic paroxysms and attacks of whooping-cough. No explanation of these appearances has been offered.

Sugar is occasionally met with in the urine in diabetes insipidus, due, probably, to alimentary glycosuria. Ord states that transient glycosuria occurs in chronic interstitial nephritis, and sometimes with angina pectoris.

The frequent occurrence of intermittent glycosuria in gouty individuals will only be mentioned in this connection. Temporary glycosuria has been reported as occurring in the early incubation stages of syphilis.

Transient glycosuria may occur after many injuries to the nervous system and in association with many nervous diseases. It was shown by Claude Bernard that puncture of the floor of the fourth ventricle in the region of the vasomotor center causes the appearance of sugar in the urine. The glycosuria is of temporary duration and is believed to arise through the nerves regulating the glycogenic function of the liver, not through vasomotor influences (Foster).

Von Jaksch has concluded that transient glycosuria is a constant symptom of some functional neuroses, such as Charcot's grand hysteria and the traumatic neuroses. In fact, he believes that this symptom might be of value in differentiating traumatic neurosis from simulation.

Among other abnormal conditions of the nervous system in which glycosuria may occur, we find the following: Cerebral hemorrhage from external violence or other causes; hemorrhage into the pons Varolii and spinal bulb; cerebral softening, cerebral tumors, cerebral parasites, cerebral abscess; disseminated sclerosis, concussion of the brain; injuries to the vertebral column; epilepsy, insanity; neuralgias generally; hysteria, severe psychical derangements, mental emotion; and exophthalmic goiter.

In cases of cerebral hemorrhage the amount of sugar in the urine will vary from a few to more than 100 grams per day, in accord with the intensity of the shock and the location of the injury (Lancereaux). Higgins and Ogden state that the sugar may appear as early as six hours after the hemorrhage and disappear within twenty-four hours, the average time for its appearance being from eight to twelve hours, and for its disappearance from the fifth to the ninth day. Sometimes the glycosuria persists for four or five months. It should be stated here that certain lesions of the nervous system may produce permanent glycosuria, accompanied by all the symptoms of diabetes mellitus.

Gout.—Sir Dyce Duckworth says: "No fact in practical medicine is better established than the dependence of a variety of glycosuria on the gouty habit of body." Gouty glycosuria does not appear generally till toward the middle period of life, and is more likely to develop in irregular or so-called suppressed types of gout. The patients are usually well developed and corpulent. Active manifestations of gout and glycosuria do not coexist. When glycosuria appears the tendency to paroxysmal joint attacks ceases. When the glycosuria disappears gouty symptoms often reappear, such as eczematous eruptions or pains in the joints.

Gouty glycosuria is not a grave affection and yields readily as a rule to dietetic and other treatment. Oftentimes the first indication of its existence is an accidental discovery of the presence of sugar in the urine. On the other hand, mild symptoms may present themselves, such as an increase in the quantity of urine, frequency of micturition, an unusual though not immoderate thirst, and, in the case of women, a persistent itching of the vulva.

Obesity and glycosuria are frequently associated. This glycosuria is at times undoubtedly of alimentary origin. In other cases the relation is of a more profound nature, and glycosuria is dependent upon faulty action of the liver or perverted metabolism in the tissues.

Diabetes when occurring in the obese is generally called lipogenous. Van Noorden has suggested the term diabetogenous obesity. "The obesity masks the diabetes." Upon this theory the diabetic habit, so to speak, antedates the appearance of sugar in the urine.

Diabetes rarely appears in corpulent persons

before the fortieth year. It is almost always mild in character and yields readily to treatment. In certain cases, however, the mild may pass into a grave form accompanied by gradual loss of fat and actual emaciation. Generally the fat and the diabetes persist together. The influence of heredity is prominent in the association of diabetes with obesity. In many cases we find diabetes related to both gout and obesity. In an analysis of 600 cases of diabetes by Schmitz, there were 35 of diabetogenous obesity, and it was thought that many of these were of the gouty variety.

Lesions of the Pancreas.—To Bouchardat (1851) belongs the credit of having first directed attention to the association and causative relation between certain cases of diabetes mellitus and lesions of the pancreas. More recently the number of cases of diabetes mellitus found postmortem to have been associated with lesions of the pancreas has been constantly increasing. These lesions are secondary atrophy from various causes, as calculi and occlusion of the duct of Wirsung from pressure, primary atrophy, fibrous induration, interstitial lipomatosis, abscess, cysts, carcinoma, acute inflammation, hyaline degeneration of the islands of Langerhans and hemachromatosis with secondary atrophy of the pancreas and hypertrophic cirrhosis of the liver (the bronzed diabetes of Hanot).

Opie divides the chronic inflammations of the pancreas into two forms, interlobular and interacinar. In the interlobular type, the islands of Langerhans are affected later than in the interacinar variety.

Hansemann states that the most common lesion of the pancreas in diabetes is a form of granular atrophy, corresponding to certain forms of granular kidney. It is essentially the same lesion described by Lépine and Barral as periacinal fibrosis. The pancreas is rarely entirely destroyed by this form of atrophy. Later and more extended observations indicate that secondary atrophies are more frequently associated with diabetes than the primary atrophy of Hansemann.

From a study of cases in the Berlin Pathological Institute and Augusta Hospital, Hansemann has found that the association of diabetes mellitus with lesion of the pancreas occurred more frequently than diabetes alone or disease of the pancreas alone, and in fact more frequently than both combined. He concludes from this study that there is no positive objection to the application of the results of experimental diabetes in animals to man; that complete destruction of the pancreas in man may be assumed to cause diabetes mellitus; that destruction of the pancreas does not produce any special form of diabetes. Diabetes from total extirpation of the pancreas is accompanied by polyuria, polyphagia, polydipsia, and by marked emaciation, and proves fatal within fifteen days or less. It does not occur, however, if as much as one-fifth of the gland is left either in its original situation or grafted under the skin.

The symptoms produced by total extirpation of the pancreas do not depend upon the loss of the pancreatic juice proper to the organism; this secretion may be diverted from the intestine through a pancreatic fistula without the production of diabetes. Lesions of the pancreas which cause diabetes do so through destruction of the islands of Langerhans. These islands are supposed to form the internal secretion of the pancreas.

Lépine ascribed a glycolytic or sugar-splitting ferment to this internal secretion, and sought to prove the existence of such a ferment normally in the blood, the removal of which from the blood deprives the tissues of the power to convert glucose into glycogen or to store it up as fat, and permits the destruction of albumin. Arthus admits the presence of the glycolytic ferment in blood drawn from the body, but contends that it is the product of postmortem changes. In the April number of the *American Journal of the Medical Sciences* Croftan draws the following conclusions from experiments on this subject:

(1) Blood and lymph contain an agent that can destroy sugar.

(2) It is a ferment contained in the white cells, and these cells must undergo destruction before the ferment can develop its powers.

(3) The glycocylitic ferment is trypsin.

Psychic Causes.—Mere reference to these will suffice. Psychic impressions have so often immediately preceded the onset of diabetes mellitus in carefully recorded cases that they have come to be looked upon as an exciting cause of the disease.

Lesions of the Nervous System.—A causative relation undoubtedly exists between lesions of the nervous system and diabetes mellitus. As a general rule, the lesion affects the cerebrospinal axis, though injuries to the sympathetic system, particularly the abdominal sympathetic, have been reported as the determining causes of the disease. In some cases the disease has followed concussion.

Liver Theories.—There are two theories concerning the rôle which the liver plays in the causation of diabetes. One theory supposes a depressed glycogenic function in the liver—that the liver cells are unable to convert the sugar brought to them into glycogen, and that in consequence sugar accumulates in the blood.

The other theory supposes an inability on the part of the liver cells to properly retain glycogen after it has been formed. This too rapid conversion of glycogen into sugar may be brought about in two ways, through increased activity of some ferment, or through disturbance of the trophic nerves to the liver.

Other Glycogen-holding Tissues.—This theory supposes an inability on the part of the muscles, glands and other glycogen reservoirs to appropriate the sugar which is brought to them in the blood, and this even though the glycogenic function of the liver be properly performed.

SOME ETIOLOGICAL FACTORS IN DISEASES OF WOMEN.[1]

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AMONG the diseases that the human body is heir to those of the female organs of generation are the most often observed. They are less numerous in country places and villages and more flourishing in large cities; they are quite unknown among the wild tribes and thrive largely among the civilized communities. Our gynecological departments are crowded with patients seeking relief from their ailments, and hospitals are overfilled with candidates for respective operations. So frequent is this woman's ailment that it is quite natural for nearly every female to have a "female disease." In the civilization of to-day, the progress of the nations is in inverse ratio to the health of woman. She is by no means the healthy stalwart matron of Sparta or of Rome, but the weak, hysterical lady of the Twentieth Century.

In the barbaric age of ancient Rome, a pregnant woman was shown the highest respect and admiration; citizens knelt before her, covering their faces in reverence when occasionally meeting her in the street. Our civilized communities of to-day have produced the "new woman," who regards childbearing as a partial shame, as a curse, as an intrusion upon her cosmetic world; and not only is this the case with the anemic aristocratic daughter, but with the laboring-class woman of to-day. Every possible means is used to prevent conception, and a successful abortion is regarded as a God-sent bliss.

The *causes* of female complaints could be divided into: (1) Predisposing; (2) exciting; (3) induced or criminal.

Predisposing Causes.—In large cities we see young girls successfully competing with men in trying to gain their livelihood. Hard times have given birth to new types of "factory girl," "machine girl," and these names speak for themselves. At the very beginning of menstruation this girl is spending the prime of her life at the machines or heavy looms, sometimes lifting heavy weights or sitting ten to twelve hours a day in a bent posture, crippling her vital organs in their very development. This hard work does not cease during the menstrual epoch, and as a result of this occupation, frequently lasting for years, we find anteflexed uterus, descensus, metritis, dysmenorrhea, etc.

Habitual constipation of these girls, due to sedentary occupation, also strongly interferes with the functions and development of uterine organs and presents another etiological factor. It brings obstruction to the circulation of the female pelvis and exercises blood-pressure upon the uterus and ovaries. (Cases are on record in which attention to the bowels has greatly modified uterine disorders.)

[1] Read before the Eastern Medical Society.

Exposure, deficient clothing, absence of proper bathing, in fact all the antihygienic surroundings of tenement-house life, are also remote causes of women's ailments of to-day. I have observed a certain aversion for bathing on the part of our working-class girls or women. Bathing—not ablutions—is quite unknown to our working woman of this city, and hence neglect of her own person as a result of it. Our great metropolis lacks accommodations for bathing for this working woman. A great demand for this hygienic improvement is felt in our industrial city, and the establishment of public baths, as well as the improvements of the tenement-house accommodations, is still an unsettled question with our city authorities.

Exciting.—In my clinical records I can trace a history of gonorrheal infection in about twenty per cent. of patients. As a result of such infection we may have in acute stages bartholinitis, urethritis, vaginitis; later on a gonorrheal endometritis, or, what is still worse, a pyosalpinx with a prospective laparotomy, castration of the appendages, or a hysterectomy in a woman yet in her teens. Thus is many a young woman's life early thwarted! Thus is she proclaimed as "sterile" to her family and to mankind. Woe to this woman who can never raise her own offspring!

Syphilis.—The ravages of syphilis are largely found among the prostitutes. During the year of 1892, at the last State census, in the population of the city of New York, estimated at 1,800,000, the number of prostitutes at that time was calculated at 15,500, a showing of one prostitute in about every one hundred and seventeen inhabitants. It has been observed that out of five prostitutes two were affected with syphilis. These facts quite eloquently show the contingent of female infectious diseases in our metropolis. The enormous rate of infantile mortality (83 per cent.) is the direct result of syphilitic infection.

Induced or Criminal Causes.—The art of criminal abortions in this country has reached its climax, and herein lies the etiology of numerous gynecological lesions. If, out of twenty-five normal labors, one case will present an abortion, we may broadly admit that out of each fifty full-term labors there is one abortion of a criminal nature which leaves behind destruction. Criminal abortions having no statistics, their destructive influence is underrated. An abortion in early marriage opens a path of misery to the young woman and may be the cause of subinvolution of the uterus, or future sterility. Following up my clinical records, I find quite frequently sterility present in robust young women with a previous history of an abortion.

In another class of patients we may observe a series of three or four abortions following each other in close proximity, the first abortion, as a rule, being a criminal one; the others following as a pathological result of improper implantation of the ovum, due to a diseased endometrium. On vaginal examination you may find a lacerated

cervix (result of mechanical interference), endometritis, salpingo-oophoritis, etc.

The So-called Preventive Treatment.—This consists of numerous appliances and methods used in order to prevent conception; checking and obstructing the natural physiological act of coition; employment of strong injections—"spermatozoa destroyers." All this will naturally lead to congestion of the uterus and ovaries and to manifold uterine disorders. Quite frequently families of intelligence and in the highest rank of society, having all the luxuries and necessities of life at their command, are the more persistent in these unhealthy, unnatural deeds. Many of these women have studied to govern the generative functions of the uterus at their own desire; they have brought science to their feet and have learned how to suppress the requirements of Nature; they have elaborated different scientific technics quite successfully. They are fully in accordance with the Malthusian theory and will not allow the increase of population. Such acts are done by some "beau monde" women to preserve the figure and attend the duties of "society."

My personal observation leads me to believe that the average American woman of to-day with her record of one or no children is getting prematurely old and fades away at thirty-five or forty; while her Dutch sister, belonging to the colonial procreating race, is exceeding her in health and vigor.

Child-bearing.—It is plain to every intelligent mind that a woman during her accouchement is exposed to many evil external influences; that she is liable to all sorts of infections. How much more augmented these dangers appear when this woman is handled by a *midwife* whose knowledge of sepsis is *nil,* and whose uncleanliness is traditional.

A few words about our friend, the physician. While we all firmly believe that obstetrical asepsis is our *fin de siêcle* success, while we are all aware *de jure* that only the aseptic accoucheur is the ideal attendant upon the lying-in woman, we, general practitioners, are still committing *de facto* silent crimes in the name of professional business, handling daily, as the case may be, patients with erysipelas, scarlatina, diphtheria, etc., and meanwhile attending to obstetrical cases. No wonder, therefore, that infection is often carried to the lying-in woman by her very friend and benefactor, the physician. Quite striking, also, is the involuntary neglect on the part of the general practitioner to give the lying-in patient a good, honest after-treatment. Having no aseptic facilities at hand, he is in constant dread of infection. I have known scores of lesions that were left to heal by Nature's restorative power, simply because the accessories of the tenement-house were more than unsatisfactory, or when the fanaticism and ignorance on the part of the family required sapient silence on the part of the physician. For such reasons a total laceration of perineum involving the sphincter ani is sometimes left untouched.

Quite frequently patients themselves revolt against small operations like perineo- or trachelorrhaphy. Imagine, then, a young woman with a lacerated perineum and cervix, with her whole vaginal tract laid open, doing her daily hard work, and, as a rule, bearing children in rapid succession. No wonder that rectocele, cystocele, descensus of uterus, retroversion, prolapsed ovaries, are so frequently met with in such very young women.

Another case is the expediting of delivery, the early use of forceps, frequent vaginal examinations, dilatation of the cervix, premature rupture of the amnion—in fact, all of the methods of unnecessary interference in order to gain time. All this is strongly contra-indicated and disturbs the steady, gradual dilatation of the cervix uteri, produces traction upon the broad ligaments, and brings sepsis, laceration of the cervix, etc.

The *nurses* of the working-class woman are another plague to the lying-in patient; these nurses are hired for general housework, and have ample opportunities to carry infection to the postpartum woman. These nurses are cooks, laundresses, scrubwomen, in fact everything but medical nurses.

The Lying-in Period.—Early getting up is frequently a cause of female complaints. The middle-class woman is in duty bound to leave her bed often on the sixth or seventh day in order to attend to her work, and herein lies the etiology for retroflexion, retroversion, descensus uteri, subinvolution of uterus, metrorrhagia, etc. Such labor as scrubbing or washing has been frequently done by these patients as early as the second week after confinement.

In conclusion, I will state that there are numerous other etiological factors of a congenital nature that infringe and shorten the life and health of the woman of to-day. She is indeed the modern Tantalus and the community is largely responsible for her sufferings. Our progressive age demands physical labor from women, urges competition with the work of the man at the expense of beauty and health. The youthful life of working girls is thwarted and injured; their married life is not strewn with roses—hence, suffering on both sides. So much for the middle-class woman.

The rich woman of fashion is a slave to the mode and to the injurious life of luxury. She is anemic and weak. She is rarely able to raise a family. She is seldom able to nurse her own child. Motherhood is getting to be a fear to the feeble sex. The coming generation is growing weaker and weaker. The woman of to-day is but a parody on the ancient type of the Greek or Roman matron. At that time a girl up to her maturity had been taught physical culture in the open air: she spent her time in wholesome exercises in the ring, in wrestling, running and gymnastics, together with the athletic young men. There she was developing her beauty, strength and grace; there she was preparing herself for future matrimonial life. There she learned the

maxim of "*Mens sana in corpore sano*," all this during the period of slavery. Our woman of to-day, with all her intellectual culture, is but a physical failure, and it is a reproach to the civilization of the century.

Let us, therefore, hope that a new and happy era will dawn upon our "new woman" of to-day. Let us take new inspiration from kind attempts in our female colleges to teach physical culture parallel with scientific knowledge, to promote gymnastics, bicycle exercise, open-air games, etc. In short, let us give our "new woman" the strength of the Roman matron and the intelligence of the Twentieth Century.

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NOTE ON THE ADMINISTRATION OF WATER IN DISEASE.

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SINCE the advent of the various theories of uric acid pathology, and the recognition of the value of the ingestion of large quantities of water in the treatment of the various conditions in which the posionous products of tissue metabolism are supposed to be the *fons et origo mali*, this simple method of treatment has often been carried to extremes. Like all remedies which are potent for good, water has properties of evil that should be recognized. One of the most important is the effect upon the blood. The microscope has shown, and hematologists recognize, that the ingestion of large quantities of pure water produces a temporary relative hydremia. It is easy to understand how the perpetuation of this blood condition is likely to produce a diminution in the nutritive and oxygenating values of the blood. The rapid passage of large quantities of water through the tissues unquestionably "washes" out waste products. Is it conceivable that its action is so intelligent and selective that it removes only effete material? Certain chemical elements are necessary to the nutritive integrity of the blood. Is it not logical to infer that an excess of water will remove a greater or less quantity of both organic and inorganic matter, upon the relative proportion of which the normal integrity of the blood depends? The effect of water upon freshly drawn blood corpuscles demonstrates this point.

The deleterious effect of the hydremia produced by the ingestion of large quantities of water upon the nutritive value of the blood is necessarily associated with more or less perturbation of the circulation. I am satisfied that, in many instances in which patients are being treated by the ingestion of large quantities of water, symptoms attributed to "weak heart," "nervous irritability," etc., are due to the large proportion of water contained in the blood, and more especially to the large quantity of water rapidly entering and leaving the circulation. Languor and debility are often, perhaps, explicable upon this ground.

In ordering the liberal use of water in disease the physican is prone to ignore the relative capacity for water of the stomachs of different patients. In some instances absorption readily occurs; in others absorption is slow and difficult, and rendered especially so by the existence of gastro-motor insufficiency. When the latter condition exists, it is enhanced by the mechanical distention resulting from the ingestion of large quantities of slowly and imperfectly absorbed water. I have noted cases in which patients, who had been ordered to drink large quantities of water, were compelled to empty their stomachs from time to time by lavage. Unless the muscular tone of the stomach be almost perfect, and absorption by the gastro-intestinal tract rapid, serious impairment of the function of digestion is likely to occur. This results not only from mechanical distention of the gastro-intestinal tract by the fluid, but also, as is well known, from the dilution of the digestive juices.

I desire especially to emphasize the influence of excessive water-drinking upon the motor function of the gastric muscle. The disturbance caused by the fluid is especially marked, if it be ingested at the ordinary meal time. Patients who have been directed to drink large quantities of water are very likely to use it indiscriminately, and with total disregard for stomach capacity, with the result that the digestion and the gastro-motor function are profoundly disturbed.

One of the most serious results of the indiscriminate ingestion of large quantities of water is what I will term the "renal water habit." Just as the bowel which has been stimulated by the use of laxatives or cathartics for a long period of time finally demands such stimulation constantly in order that it may functionate, so the kidney may eventually arrive at a point when it carries on its functions very imperfectly unless it is stimulated by the ingestion of large quantities of water. I have come to believe that certain waste products, which are rapidly removed by the kidney, and the formation of which is limited by restriction of the proteid food elements, are necessary to the normal performance of the renal function. This is not an argument in favor of the indiscriminate administration of proteids to patients in whom the renal function is impaired. I do, however, wish to call attention to the frequent desirability of a certain amount of proteid substances in the diet in some cases of renal disease.

It must be remembered that, both by heredity and acquirement, the kidney of the human subject has become habituated and adapted to the stimulation produced by proteids. It is not my desire to discuss this subject in detail here, but merely to call attention to it in passing.

I wish again to emphasize the evils of the establishment of what I have termed the renal water habit. Whether this habit results seriously in the long run, I am not prepared to state. My attention has been drawn to the subject too recently to permit any dogmatism on this point. The habit is, to say the least, inconvenient, and

should be regarded as a possible source of remotely serious results. It must be admitted that a sluggish kidney is inconvenient, and is always a possible source of danger in case any extra strain should be brought upon it by either local or general disease, whether of an infectious character or not.

It is claimed that the free ingestion of water is very efficacious in reducing edema and anasarca in renal and other diseases. I have often observed beneficial results in this regard, but I am free to say that in the majority of instances the patients have been placed under such favorable circumstances otherwise that it would be rather far-fetched to attribute the improvement entirely to the ingestion of water. Patients treated at the various spas often find marked improvement in the anasarca present in renal disease. Diet, rest, change of air, baths, and cheerful surroundings are oftentimes forgotten as factors in bringing about a beneficial result. In many instances I am confident that the ingestion of large quantities of water increases rather than diminishes anasarca and edema. This is especially apt to be the case when gastromotor insufficiency and impaired absorption of fluids exist. An aggravation of symptoms should be expected in any case from any remedy which disturbs the functions of the gastro-intestinal tract. Whether overstimulation of the kidney by free water drinking in acute—or even chronic—renal disease be advisable is certainly open to question. Vicarious rather than renal elimination is often best.

From prolonged and frequent observations of the effects of the ingestion of large quantities of water in acute and chronic inflammatory troubles of the lower portion of the genito-urinary tract, I have concluded that water is often injurious. It is the common practice to order for a patient with acute cystitis, urethritis or prostatitis large quantities of pure water. This is, in many instances, a mistake. The greater the amount of fluid ingested, the more frequently the patient must urinate, and the more frequently he urinates the greater the amount of mechanical disturbance of the inflamed parts—in the treatment of which rest is a *sine qua non*. Water in limited amounts, with alkalies sufficient to render it neutral, is, of course, indicated. A careful regulation of the diet, and the administration of mild alkaline preparations constitute a much more logical means of treatment than mere dilution of the urine with large quantities of water, which must be eliminated, and the elimination of which must necessarily disturb the inflamed area.

Conclusions.

1. While the ingestion of large quantities of water in various affections is often of great value, the treatment is sometimes extremely detrimental.

2. The nutritive value of the blood is often impaired by the relative hydremia produced by the ingestion of large quantities of water.

3. Disturbances of the circulatory and nervous systems are frequently produced by it. So-called weak heart, palpitation, nervous irritability, lassitude and exhaustion on slight exertion are among the phenomena that may result.

4. Serious digestive disturbance, involving impairment of the secretion and composition of the gastro-intestinal juices, and gastromotor insufficiency may be produced by the ingestion of water in large quantities.

5. Edema and anasarca, while often relieved by the free ingestion of water under favorable circumstances, are not infrequently enhanced by it.

6. Renal water habit may develop, by virtue of which the kidney becomes permanently sluggish unless it receives its wonted stimulus of large quantities of water.

7. Acute and chronic inflammatory affections of the kidney are sometimes aggravated by giving water in excess simply by overworking the renal organs.

8. Inflammatory affections of the lower portion of the genito-urinary tract are often deleteriously affected by excessive water-drinking through the mechanical disturbance necessitated by the resultant frequent and copious micturition.

REPORT OF TWO CASES OF TEMPORARY HYPERTROPHY OF GLANDS OF THE SKIN OF THE AXILLA IN PUERPERÆ.[1]

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WITHIN the last three months I have had two cases of this singular affection that previously had not come to my notice. The first was a healthy primipara whose pregnancy, labor and puerperium were perfectly normal in every respect. On the fourth day after labor the nurse called my attention to a swelling in the right axilla which had appeared the day before; it was evidently in the skin itself. The skin seemed to be from one-half to three-quarters of an inch in thickness; there were two masses separated by the fold at the anterior margin of the axilla. The axillary mass was about one and one-half inches from side to side, and about two inches from below upward. The mass on the front of the chest lying over the pectoral muscle was two and one-half to three inches broad from side to side and about two inches from below upward. This swelling caused very little discomfort, and after the patient learned that it was perfectly harmless no more attention was paid to it. It disappeared in three or four days. There was at no time any trouble with the breast or nipple. No attempt was made to obtain a secretion from the mass.

The second case, which was also in a primipara, was almost identical with the first except that the mass nearly disappeared five days after it was first noticed, on the ninth day of the puerperium, and then reappeared two days later to remain several days more. An unsuccessful attempt was made to get a secretion from the mass.

[1] Presented to the Chicago Pathological Society, April 14, 1902.

I find that similar cases were described by Champneys in 1886 in a paper on "The Development of Mammary Functions by the Skin of Lying-in Women," published in the Medical and Chirurgical Transactions, Vol. 69. He found the condition 37 times in 377 cases carefully examined. It was frequently found on both sides and about twice as often on the right side as on the left. Although no pores were found and there was no sign of a supernumerary breast, he was often able to get a secretion from the mass which was sometimes a granular débris and sometimes colostrum and milk. Champneys' first supposition, that the mass was due to hypertrophy or increased function of the sebaceous glands of the skin, was not confirmed by microscopical examinations made in three subsequent cases that died. These results published by Champneys and Bowlby in 1895, in the Medical and Chirurgical Transactions, Vol. 78, show that the sweat glands are involved.

It has long been known that the tubular convoluted glands of the skin differ considerably in size and function in different localities. The greatest differentiation in this kind of glands is found in those of the ear and in those of the axilla. As is well known, the ceruminous glands of the ear belong to the same class as do the ordinary sweat glands. The tubular glands in the neighborhood of the axilla likewise differ considerably from those found in most parts of the skin, being longer and larger, lying rather beneath the skin than in it and invested with plain muscular fibers that form a characteristic network. Creighton found that the skin glands of the dog are quite similar to the axillary skin glands of the human. It is the hypertrophy of these specialized sweat glands of the axilla that produces these masses in the skin.

From Champneys' articles it would seem that the cases of puerperal hypertrophy are not rare. He has found the condition occasionally in pregnancy. It is generally found, however, three to four days after labor. It is certainly an interesting physiological phenomenon and possibly of diagnostic value. I have failed to find any reference to it in any obstetrical literature except in Dakin's Handbook of Midwifery.

MEDICAL PROGRESS.

MEDICINE.

Checking Hemoptysis.—The intravenous or subcutaneous injection of gelatin has been favorably employed to stop pulmonary hemorrhage, but is attended by numerous drawbacks. Its use in one case led O. NIEDNER (Deut. med. Woch., June 5, 1902) to observe that the part of the chest-wall injected did not take part in the respiratory movements, probably owing to the extreme distention of the cellular tissue. From this he argued that mechanical fixation should fulfil the purpose of checking the bleeding from a diseased lung by simply putting the parts at rest. After determining by signs and auscultation from which side the bleeding is taking place, that side should be covered with overlapping strips of adhesive plaster extending from the vertebræ to the sternum including the apex. The clavicle, spine of the scapula, axilla and nipple must be protected with cotton pads. This will take about twelve strips, 3 x 60 cm. He reports six cases which resisted all other methods of treatment but were quickly benefited by this procedure. The advantages consist in quick and ready application, without pain, danger of sepsis or thrombosis, or operative preparations.

Cardiac Disturbance from Hepatic Insufficiency.—A cure of an apparently hopeless case through reversal of diagnosis and treatment is reported by T. HERNANDEZ (Rev. de la assoc. med.—far de la Isla de Cuba, Year II., No. 7). Severe dyspnea, cyanosis, edema of face and body, and ascites made up the clinical picture of severe circulatory disturbance. Diagnosis of cardiac lesion with valvular insufficiency and fatal prognosis had been made by the attending physicians; and abnormalities of heart sounds and action seemed to justify this view of the case. Interrogation of the patient, a girl of seventeen, elicited the following history: Entire absence of rheumatic affections, personal or family; robust health till six months previous to present illness; when, after a severe cold, pain in the right hypochondriac region was noted, followed later by precordial distress with subsequent development of the condition described. This history led the author to the belief that the heart was not primarily responsible for the trouble, but rather that it was laboring to overcome obstruction to the circulation, and that this obstruction lay in a congested liver just as impeded renal circulation gives rise to cardiac hypertrophy in the nephritic. Acting upon this hypothesis, treatment was directed to the hepatic congestion and disturbed circulation, by active purgation, with the result that ascites and edema disappeared, heart function became normal, murmurs ceased, and the patient was completely restored to health after two months' care. The writer believes that cardiac embarrassment arises more frequently than is generally supposed from deranged hepatic circulation, and that the latter should always be taken into consideration in the treatment of cardiac disturbance.

Contribution to Amebic Dysentery.—Our present unsettled knowledge as to the etiology of dysentery is dwelt upon at length by L. ZORN (Deutsch. Arch. f. klin. Med., Vol. 72, Nos. 3 & 4). A thorough revision of the nomenclature seems advisable and the term dysentery should be applied only to that acute epidemic form which probably has bacteria for its cause, while the other types would well go under the name amebic enteritis. The question as to whether the amebæ are the real incitors of the latter class or serve merely as the carriers of bacteria still remains unsettled. It is generally conceded that more than one variety is pathogenic, and the author recognizes three: the ameba coli, ameba coli mitis, and the ameba intestini vulgaris; the latter occurs also in the healthy, especially after the use of Carlsbad salts. Most cases of true amebic dysentery do well under the combined use of quinine, methylene blue and tannalbin internally, with rectal irrigations of tannin and quinine. The amebæ are generally easily detected in the stools as greenish-yellow shiny bodies, movable on a warmed stage, but the details of their internal structure varies with the variety. Though they succumb rapidly to quinine in dilute solution, a certain concentration may be necessary since in the stools they are much more resistant owing to the fact that they often are surrounded by tenacious mucus. Attempts to grow them on bouillon, agar, gelatin and hay-infusion failed, as with most other investigators. For microscopical examination the fresh specimens gave the best satisfaction, but excellent stained slides were ob-

tained by the following method: A few cubic centimeters of the feces were mixed with from three to four times the amount of a fluid consisting of 15 parts of a 1-per-cent. chromic-acid solution and 3 parts of a 1-per-cent. osenicacid solution. After ten minutes the fluid was centrifuged and the sediment mixed with about five times its amount of a 25-per-cent. aqueous solution of Beale's carmine. After half an hour the centrifuge was again used and the deposit treated with a dilution of the same carmine up to a pink color. The solid matter can now be embedded in glycerin, or, after dehydration, in balsam. The fecal particles will appear brownish, the amebæ pink, with dark red nuclei.

Calcification of the Heart.—Among the rarest pathological specimens are those which show extensive calcareous degeneration of the heart-walls. A unique case is reported by F. VON PESSEL (Münch. med. Woch., June 10, 1902). The patient was suffering from an extensive lymphosarcomatosis and died shortly after a slight operative interference for the relief of the dyspnea caused by glands pressing on the trachea. At autopsy is was found that the greater part of the anterior wall of the left ventricle, together with a large portion of the septum, was converted into a shell of lime. It was hard to comprehend how the patient could have withstood the effects of an insufficient systole together with his malignant disease and a laborious occupation and yet show so few signs of cardiac insufficiency until an operation became necessary, when a short chloroform narcosis apparently resulted in sudden decompensation.

Malaria and Filariasis in Barbados.—This is one of the very few regions in the south where these two diseases are not both active. GEO. C. LOW (Brit. Med. Jour., June 14, 1902) states that malaria in Barbados is unknown, while filariasis exists to an inordinate and dangerous degree. It is more than significant that nowhere on the island are the Anopheles to be found, while Culex fatigans, one of the most frequent hosts of filaria nocturna, abounds. Just why there are no Anopheles; whether they were once imported and subsequently became extinct or whether they never reached Barbados is not known. All the neighboring islands are pestilential with malaria and in each Anopheles are found in abundance. The inordinate frequency of elephantiasis and the kindred manifestations of filarial infection is in direct proportion to the infection of the Culex fatigans; out of 100 taken for examination from the wards and corridors of the general hospital 23 contained the embryos. On analyzing a table which resulted from the examination of 600 patients in this hospital and in other institutions the very interesting fact is established that of the 13-per-cent. of patients found to be infected, in no less than 8-per-cent. there were absolutely no symptoms. In discussing the question of limiting filariasis, the author states that considering the fact that Culex fatigans is to a larger extent domestic and breeds in much smaller areas than Anopheles, a great deal can be done by improving the drainage and in protecting from mosquito infection such tanks and cisterns as must remain full of water. The only way to accomplish this is to have the matter overseen by competent men, because in Barbados nothing in the way of coöperation can be expected from the natives.

A Case of Fatal Hereditary Edema.—Iunicke in 1882 described this condition now known as angioneurotic edema, but, as is well known, it rarely ends in death. T. WARDROP GRIFFITH (Brit. Med Jour., June 14, 1902) gave a most interesting history of a girl, under observation for sixteen years, who finally and very suddenly died from laryngeal edema. The history was as follows: The girl's father has suffered from swellings of the body ever since infancy. Twice it affected the larynx and the third time at the age of twenty-nine he suddenly died during the third attack. Shortly after the girl's birth, the right arm suddenly became so swollen that the sleeve had to be cut away in order to remove it. The swellings were usually pale, diffuse or circumscribed, did not pit on pressure and never became vesicular or bulbous. For sixteen years she was under the author's care and although the larynx was occasionally affected no serious danger or difficulty was experienced. One day, while spinning a top for her child she suddenly dropped it, rose, clutched her throat and dropped dead. Thus so sudden was the last attack. She had a few hours before complained of some throat swelling, but it had not seemed to amount to much. Autopsy showed that the walls of the larynx came together just below its superior aperture and continued juxtaposed until just below the level of the true cords. The edematous fluid was pure serum and, contrary to conditions usually found, the tissue covering the true vocal cords was decidedly affected. There are many things of more than passing interest bearing on these cases. Angioneurotic edema has been traced through five generations, no less than 22 members having been affected. It has been called "wandering edema," "massive" or "giant urticaria" and various other names which strongly suggest that their authors were agreed in a measure that it was of neurotic origin. Two hundred and thirty years ago Ranvier ligated the femoral vein of a dog and noted that there was no swelling until after section of the sciatic. Gowers notes the association of trigeminal neuralgia with venous distention on the same side and edema of the scalp. Charcot observed the association of swelling with hysterical palsy, the swelling passing away with the cessation of the palsy. In alcoholic paralysis dermatographia, which is a traumatic urticaria akin to, if not identical with, the edemas under discussion, is perhaps more marked on occasions than in any other condition. There is still much study needed ere one can understand the various forms of swellings; the purely mechanical, the toxic and the trophic are so interwoven in their relationship as to be extremely difficult of disentanglement.

Hysteria and the Lacrimal Reflex.—The manifestations of hysteria attack the eyes as much as or more than the other organs, chiefly in the form of anesthesia of the conjunctiva. Although the palpebro-ocular reflex may be totally abolished in this disease the lacrimal reflex is not affected at all. This fact constitutes a very important differential point between hysterical bulbar anesthesia and that due to trigeminal partial or total paralysis, as explained by W. G. SPILLER (La sem. méd., 1902, No. 23). The lacrimal reflex is very effectively provoked by placing a scrap of paper between the upper lid and the eyeball. He has had opportunities of verifying this observation on two patients from whom the Gasserian ganglion was taken on one side for obstinate neuralgia. In one of these patients he found that on tickling the nasal mucous membrane on the side of the operation no tears could be made to flow from the eye of the same or of the opposite side. If, however, the mucosa of the nares of the normal side were touched a prompt reflex flow of tears appeared. He next compared the two sides by placing bits of paper between the upper lid and the ball and saw no tears appear on the side whence the ganglion had been taken, but a free secretion occurred in the opposite eye. The other individual behaved in the same manner. From these observations Spiller suggests systematic tests for the presence and absence of the tear reflex in the failure of touch sense about the face and suggests that it will

prove a sure means of distinguishing between true centric and peripheral nervous disease and hysteria.

Buccal Tuberculosis.—Tuberculosis of the mouth is almost always secondary; indeed, the few primary cases described are doubtful ones, writes G. VINCENZO (Gazz. degli osped., June 8, 1902). The author's study of this subject may be thus summarized: Tuberculous stomatitis may be disseminated or circumscribed, the former being readily recognized by the formation of tubercles on the margin of the tongue, frenum, cheeks, lips and hard palate. The circumscribed form may, however, be difficult of diagnosis. Infection is carried by the blood or may enter through a wound. Sites of tuberculous predilection in the mouth are, in the order of their frequency, the gums (infection occurring in this location after extraction of teeth in most instances), the pharyngeal portion of the tongue, hard palate, cheeks, lips, and, rarely, the labial commissure.

The author describes a case in the latter location in a patient with pulmonary tuberculosis, the portal for infection being opened through a burn from an imperfectly dissolved dose of creosote administered by mouth. Ulceration started from the labial commissure and extended to the cheek, having an irregular, ragged infiltrated border with an occasional grayish-yellow nodule; the base being granular and bleeding readily. Very little pain was experienced save through movement of the lips in speaking or eating. Points in differential diagnosis of tuberculosis in this location are helpfully grouped by the writer as follows: The lesion may be diagnosticated from ulcero-membranous stomatitis in that the latter has its initial focus in relation to a carious tooth or one which is piercing the gum; the fetid odor, acute concomitant adenitis, diarrhea and age of patient are additional diagnostic aids. In epithelioma the age of the patient is an important consideration and cancerous ulcers are round from the beginning, whitish, and the center presents a small scab. Syphilitic lesions are distinguished by evidences of infection elsewhere and a general examination will make the diagnosis between tuberculosis and syphilis. Herpes is always preceded by vesicles and tends to rapid cure. Eczema is generally accompanied by lesions elsewhere, as about the nose, behind the ears, etc., and never gives rise to deep ulceration. Impetigo is characterized by yellow crusts and heals rapidly. The curative measures advised are excision of the diseased tissue or curetting and cauterization with the thermocautery..

A Case of Narrow Aorta.—Cases of hypoplasia of the arterial system have been reported, but are sufficiently rare to demand more than passing interest. In the case published by R. BANDEL (Deutsch. Arch. f. klin. Med., Vol. 72, Nos. 3 & 4) there was present an abnormally stenosed and thin-walled thoracic aorta which reached its highest degree where the arch became the descending aorta. The narrowing was not interrupted by any structures or dilatations. Some doubt existed as to the time of origin of this anomaly, for, since septum defects or a patent ductus Botalli were not present, it seemed improbable that the normal development was interrupted during fetal life. The patient complained of nothing up to his sixteenth year, yet the disproportion probably already existed then, but was compensated for by the increased expansibility of the thin aortic walls. Between his sixteenth and eighteenth year, however, he passed through a severe illness and subsequently to this took up the laborious occupation of a miller, all of which incidents doubtlessly led to loss of compensation. There was nothing characteristic about the different symptoms; they were simply those of hypertrophy and dilatation of both, but particularly the left ventricle with a long diastolic murmur over the aortic region and a high pulse. Digitalis produced only a temporary relief.

Diagnosis of Banti's Disease.—That Banti's disease forms a definite symptom-complex and has been generally accepted as a separate and distinct disease is without doubt for the marked splenomegaly and anemia, followed by secondary hepatic cirrhosis and ascites and often associated with a hemorrhagic diathesis and leucopenia, are too characteristic to be mistaken for anything else. The excessive hyperplasia of the spleen prevents mistaking the condition for acute infectious diseases, chronic hyperemia of emphysema or heart disease, tumor or amyloidosis. In leucemia there is a characteristic condition of the blood and in alcoholic cirrhosis the ascites and contraction of the liver are not a secondary process. More difficulty may arise with malaria but particularly with hereditary tardy syphilis of which four cases are published by H. CHIARI (Prog. med. Woch., June 12, 1902) which at first glance resembled Banti's disease. It is here that concomitant conditions, such as a distinct history, marked endarteritis in youthful subjects and other luetic stigmata, must lead to the proper diagnosis which may be confirmed by microscopical examination of the tissues.

Gastroptosia.—There is considerable difference of opinion in regard to the use of the terms gastroptosis, enteroptosis, nephroptosis, etc., and also in reference to the relation which these conditions bear to one another. A. ROSE (N. Y. Med. Jour., June 21, 1902) is particularly annoyed by those who find movable kidneys so frequently and, believing that a certain group of symptoms result from the abnormal position of the kidneys alone, proceed to sew them up at once. He believes that nephroptosis seldom if ever exists alone, but that it is simply a part of a general relaxation of the abdominal organs and especially of their muscular walls. Attention must be paid to any faulty digestive power, but support must be given to the intestines and stomach as well as to the kidney. He claims very good results from a specially devised belt and from strapping with adhesive plaster.

Abdominal Symptoms in Malaria.—It is not uncommon to experience some abdominal pain preceding a chill, but severe cramps lasting for a considerable time make the following cases remarkable. J. M. JACKSON (Boston Med. and Surg. Jour., June 26, 1902) had a patient who for three weeks presented symptoms of appendicitis or septic peritonitis as evidenced by severe abdominal pains, vomiting, diarrhea, chills and a collapsed condition. Examination of the blood showed that the plasmodia and the symptoms promptly subsided under quinine. Several other cases are reported in each of which a diagnosis of general peritonitis or some abdominal condition had been made, but which were evidently malaria.

American Mineral Springs.—There is so little known about our own mineral springs that many American physicians are accustomed to send their patients to Europe, believing that it would be impossible to attain the same amount of improvement from springs in our own country. J. K. CROOK (Med. Rec., June 28, 1902) has investigated a large number of springs and finds that in every class except one the waters of this country are richer in mineral ingredients than are those of Europe. Not merely in potency of a few individual springs, but in general variety of mineral constituents which go to make up an attractive medicinal water there are within this country, with the single exception of the sulphated salines, better waters and more of them than in Europe. There are waters which are similar to, but not so rich as the saline purgative waters, Hunyadi János, Carabana and Apenta. The American

waters have the same therapeutic effect, but must be used in larger doses. With this exception, there are excellent waters representative of each class and it only remains for the ordinary practitioner to obtain the necessary information to direct his patients aright. Few American physicians appreciate the value of mineral waters, and hence the springs are only very slowly coming before the public notice. Most of the important springs have now been so improved that attractive and comfortable accommodations may be offered the patient.

A Case of Aortic Aneurism.—Aneurism of the aorta especially those of the ascending portion, are by no means rare, yet they can cause considerable difficulty in diagnosis on account of unusual localization as in the case of E. HARMSEN (Deutsch. Arch. f. klin. Med., Vol. 72, Nos. 3 & 4), in which a large sac developed from the left side of the aorta and it was impossible to decide during life whether it or the pulmonary artery was involved. Since the point of origin of the large vessels was not affected, no permanent difference in the radial pulses could be detected, the slight temporary changes could well be explained by unequal pulling of the sac as it grew. Considerable compression was exercised upon the pulmonary artery which resulted in hypertrophy and dilatation of the right ventricle and a systolic murmur in the third, left intercostal space. Stenosis of the left bronchus led to numerous bronchiectasiæ and to a putrid bronchitis. The autopsy disclosed as immediate cause of death, numerous miliary abscesses in the brain and, in discussing their etiology, the author considers three possibilities, (1) the thrombi of the aneurism itself; (2) the fetid bronchitis and (3) the gelatin injections which were used for therapeutic purposes to stop the frequent hemoptyses. The second seems most probable. Numerous experiments on the proper concentration of gelatin injections seem to show that strong (30-per-cent.) solutions are not more dangerous, but are preferable on account of greater ease of administration. Guinea-pigs stand the injection well and entravital occlusion of the vessels could not be detected.

SURGERY.

Treatment of Sepsis.—Early in the present year the value of high, long-continued rectal irrigation in the treatment of sepsis was exploited by J. WERNITZ of Odessa (C'blatt f. Gynäk., 1902, No. 23). The same author continues a discussion of this means of combating that deadly condition and concludes as follows: The irrigation first of all cleanses the bowel of all deleterious matters whose absorption may lead to increase in the symptoms and whose evacuation is especially important whenever the sepsis is connected with peritonitis. Paresis and paralysis of the bowel is so common in this condition that any means of causing evacuation will be acceptable. After a short time of slow absorption of the hot saline fluid the heart-action and circulatory sufficiency increase, then the secretion of perspiration and of urine become more active and still more of the poisons are removed from the body. The temperature then falls and under the improved circulation often the patient is much better and in a hopeful condition after a few hours. The procedure is without danger, can be carried out upon any patient, and has so much in its favor that no one should ever omit it in the management of these cases.

Horizontal Gastroduodenostomy.—That surgeon is a skilful operator by genius who in the presence of unusual difficulties instantly conceives and performs modifications of standard operations. C. NICOLADONI of Gratz (C'blatt f. Chir., 1902, No. 23) encountered a carcinoma of the small curvature of the stomach which after removal left a long point extending toward the right, in such a manner as to prevent the oblique gastroduodenostomy recommended by Kocher, whose operation he was at the moment attempting. For this reason he turned up the greater curvature and an inch or so back from and parallel to it made a horizontal incision. At this point he found approximation of the duodenum and stomach by the usual four suture lines very easy. He thinks that the oblique anastomosis of Kocher had best be abandoned, because the horizontal is so much more direct and simple.

Lanoline in Dressings.—Fatty substances were at one time very extensively employed as a part of surgical dressings prior to the advent of antiseptic and aseptic surgery. Obediently, however, to the teaching of such men as Kocher practically all fatty substances about wounds have been abandoned, because their fat-basis has been shown to be a convenient and fertile soil for the propagation of many forms of bacteria. It may be granted that antiseptic ointments do not fulfil the dictates of rational treatment, but this is not the fact concerning pure fat, like lanoline, according to P. VON BRUNS and B. HONSELL (La sem. méd., 1902, No. 23). These surgeons have found that for open wounds gauze soaked in lanoline and covered with ordinary cotton fulfils all the uses of a wet dressing and has none of its inconveniences. It is well known that many wet dressings create a maceration of the skin and lead to dermatites, more or less tenacious, and that after being in place twelve to twenty-four hours their bactericidal powers are totally dissipated and their moisture tends to imprison the secretions of the wound and change them into a very productive soil for all bacteria. There are certain cases, however, in which the indications are no disturbance of the wound or of the affected part and the application of an extensive dressing, although the secretions from the wound may be really very abundant. It is in just these cases that Honsell recommends lanoline dressings. This substance liquefies under the body heat, permeates the gauze and spreads over the wound surface as a thin layer, becomes readily permeable to the secretions from the wound and imparts to the patient a feeling of peculiar freshness. The lanoline gauze permits discharges to pass through its meshes into the absorbent cotton which forms the next layer of the dressing. These lanoline dressings are also available to combat all forms of cutaneous irritation consequent upon the use of the various common wet dressings, to soothe the reaction after burns, to protect the granulations of wounds from the adhesion of gauze to them with the consequent pain and bleeding following their removal, to guard against offence to the skin by the ordinary wet dressings through making the layer next to the skin non-adherent. So far as the purposes of asepsis and antisepsis are concerned, lanoline may be regarded as a feeble antiseptic, but for sensible security it must be employed under all the usual precautions.

Tuberculosis of the Testicle.—An interesting analysis of ninety-six operations for the relief of this condition is presented by O. HORWITZ (Jour. Am. Med. Assoc., June 21, 1902). He has found that a primary tuberculous infection of either the epididymis or testicle may occur, the former being by far the more common. A primary infection of the epididymis, secondarily that of the testicle, is more common than the descending one. Primary involvement of either usually takes place through the circulation, a predisposing cause being a slight traumatism or an infective condition, such as gonorrhea. Secondary involvement may follow a primary focus in organs which are in direct anatomic relation, such as the seminal vesicles, prostate, urethra, bladder or kidney. The invasion may be rapid

with abscess formation, or slow with symptoms resembling syphilitic orchitis or malignancy. The tuberculin test is recommended for doubtful cases and if hydrocele be present, its fluid should be examined for tubercle bacilli. He does not recommend injections of iodoform or sulphate of zinc. Epididymectomy is favored in all cases of encapsulated caseous nodules quiescent in the epididymis, and together with resection of the vas deferens is not attended by either atrophy of the testicle or sexual weakness. He finds that curettage is dangerous and uncertain and is only to be employed when radical treatment is not permissible. When the epididymis alone is involved, a resection of the diseased structure is all that is required. Double orchidectomy should be performed when both glands are diseased. It is probably better to wait until a later time before removing infected seminal vesicles when the epididymis or testicle is resected. The author believes that hygienic and climate influences play an important part after operations and that the antituberculous remedies are to be employed in connection with surgical treatment.

Umbilical Cysts.—Though comparatively rare, a great variety of cysts may have their seat at the umbilicus and their symptoms may be so pronounced that they may be mistaken for incarcerated umbilical herniæ, as occurred to K. WALZ (Münch. med. Woch., June 10, 1902). Besides allantoic cysts, cysts of the urachus claim particular attention and may be diagnosed by the presence of several layers of polymorphous epithelium in the walls. More rarely, atheromata, dermoid and echinococcus cysts may be found and encapsulated peritonitic exudates and ovarian cysts occasionally present at the navel, or a hernial sac may become cut off from the rest of the peritoneum and fill with fluid. There still, however, remains, a considerable number of cases in which the nature of the tumor is doubtful.

Laparatomy Incision.—The frequent occurrence of ventral herniæ succeeding laparotomy wounds has led to the employment of various intermuscular operations which have been more or less successful. A modification of this method has been used by L. A. STIMSON (Med. Rec., June 28, 1902) during the past two years, when the lower portion of the abdomen was the site of operation. The technic consists of a curved transverse incision through the skin, aponeurosis and sheath of the recti, followed by the usual longitudinal separation of those muscles and division of the peritoneum. The transverse incision crosses the middle line about four centimeters above the pubes and extends a variable distance toward the anterior superior spines on either side, being carried down to the aponeurosis of the external oblique, the fibers of which are separated. The incision is carried down through the sheath of the rectus, but this deeper portion of the incision does not extend beyond the edge of the rectus. These flaps are then dissected loose by cutting the attachment to the septum which constitutes the linea alba. The recti are then separated by a median incision and the peritoneum is opened. The longitudinal incision may thus be extended from the symphysis two-thirds of the distance to the umbilicus. If more room be necessary the flap may be cut in the median line and prolonged as far as necessity compels. At the termination of the operation the peritoneum and sheath and aponeurosis are sutured separately with catgut and the skin with silk. The central transverse portion of the incision is thus protected from a separating strain by the uninjured recti beneath it, and the longitudinal incision by the overlying fascia.

BACTERIOLOGY, HISTOLOGY AND PATHOLOGY.

Cancer a deux.—The occurrence of carcinoma in both husband and wife has recently been considered more so than formerly, a proof of the intercommunicability of this disease. In this connection two interesting cases are reported by RADESTOCK (Deut. med. Woch., May 29, 1902). The first instance is that of a woman who died with recurrent carcinoma of the ovary. Her husband seven years later succumbed to the effects of intestinal cancer. The second case is that of a woman of seventy with carcinoma of the esophagus with a rapid, fatal ending. Within a few months the husband died from a cancer in the same locality. The author calls attention to a hereditary history of carcinoma of the wife only in the first case and to the long interval before the invasion took place in the husband. In the other case the remarkable facts are the similar course and the locality of the disease.

A New Method of Inoculation against Anthrax.—Several years ago G. SOBERNHEIM (Berl. klin. Woch., June 2, 1902) described the use of an anthrax serum which could be used successfully against experimental anthrax infection, whether the latter was accomplished by feeding animals with anthrax spores or by the subcutaneous introduction of bacteria. With a view to the production of a more lasting and more active form of immunity, it was decided to resort to a method which involved the use of a weak culture of anthrax bacilli in addition to anthrax serum. The serum was obtained by the use of gradually increasing doses of anthrax cultures of graduated virulence; horses, oxen and sheep were employed. The method of combined immunization consisted in the separate subcutaneous injection of the protective serum and of the weak anthrax culture in different parts of the body. Fourteen days later the animals were inoculated with fatal doses of virulent anthrax bacilli. The results which followed this combined method of immunization were fully as satisfactory as those previously obtained by the employment of protective serum alone. The practical value of the method outside the laboratory was demonstrated in a series of 2,700 inoculations of cattle in the province of Pomerania. In some of the districts fresh outbreaks of anthrax occurred; in others the disease had been strongly entrenched for a considerable period; but in no single instance did the disease spread to cattle after immunization, although unprotected animals in the immediate neighborhood fell victims to the disease time and again. A single inoculation by the combined method continued to give protection during an observation period of more than nine months. This method has the advantage over that of Pasteur, in requiring but a single inoculation. The period of immunity is apparently of longer duration and the protection more potent than when Pasteur's method is followed.

Experiments with Actinomyces.—The bacteriological examinations of the micro-organisms of human actinomycosis has hitherto yielded various contradictory results so that one is forced to assume different varieties. K. DOEPKE (Münch. med. Woch., May 27, 1902) had occasion to investigate the material from three typical jaw cases and finds that the growth on different media is positive only when these are inoculated with a relatively large amount of pus. The colonies generally grew anaerobically; gelatin was liquefied pretty rapidly; on bouillon a moderate turbidity with sediment, but no skin on the surface, was noticed and a yellowish or yellowish-brown pigment was produced with a disagreeable odor suggestive of decomposing proteids. The diagnosis actinomycosis can be rendered positive by (*a*)

an unstained smear from the fresh pus which shows the degenerating form of the fungus, the ray-shaped bundles; (*b*) a smear stained according to Gram, giving evidence of short or long threads or more spherical bodies; (*c*) a series of sections, in which, after proper manipulation, both *a* and *b* can be identified. The absence of ray-shaped bundles does not exclude actinomycosis. The granular bodies contained in the filaments may develop into streptococcus-like chains, into fine, slightly curved threads, or into segmented thread of various sizes.

The Isolation of Typhoid Bacilli from Water.—VINDELHAUT (Russki Vratch, N. 19, 1902) makes use of the agglutinating properties of immune serum in order to detect the presence of typhoid bacilli in water. So far he has made only a preliminary test of the method, which consisted in the following: He contaminated water with typhoid and colon bacilli and let it stand at 37° C.; then he added to the water immune serum. After a time there forms a sediment which is separated from the rest of the water, diluted with normal salt solution and a Petri plate prepared from it. The plate usually shows only cultures of typhoid bacilli.

The Problem of the Cause of Cancer.—The solution of this problem will, in human probability, be reached not by one, but by many minds. Hence, it is of interest and advantage to record briefly the opinions of such men as O. ISRAEL (Archiv. f. klin. chir., B. 67, H. 3), especially when based upon study. In tabular form his conclusions may be thus enumerated: (1) All causes operating to establish and maintain breaks in superficial continuity may also excite new-cell proliferations (attritions, traumatisms and nutritive changes). (2) The same results from functional activities, recognizable especially easily in lymph-nodes and leading to compensatory hypertrophy and hyperplasia. (3) Epithelial and endothelial layers cover in a very short time and by means of a rich cell-division process (which precedes their own) free and exposed zones (loss in continuity of the connective tissue, fibrin-coagula). Their cell-division ceases only when the entire surface is covered. (4) The subsequent development of protective (superficial) cells, in which through the frequent repetition of the activities resulting in proliferation (see heads 1—3) naturally a further continuation of cell-division occurs, determines through adaptation and transference a rather one-sided activity of their powers of multiplication, while other functions and morphological characters are changed or lost. (5) If there is a harmony between the development of the connective-tissue element as it strives to fill in the space in active evident proliferation, and that of the superficial cells, then benign neoplasms may arise (cysts, papillary fibromata, myomata, etc.) (6) If the proliferation of the superficial cells outruns that of the connective-tissue cells and out-balances its adaption-powers and resistance, then malignant tumors occur (carcinomata). (7) The protective cells which have grown inward into the base, cause there by their pressure of active growth free surfaces, undergo through the inconveniences of the local conditions (space and nutrition) and of through their multiplication increasing losses, which call for additional reparative activity (see heads 1—3). Thus in the primary focus and in the metastatic deposits the permanent predominence of the epithelial (protective) cells is established. (8) All the well-known injuries which peculiarly affect the protective cells are causes of cancer and capable of causing destructive growth so soon as they reach conditions of variation in cell-development, provided they act frequently and persistently enough to excite the extraordinary capacities of proliferation. Then the conditions enumerated in heading 6 arise. (9) Mechanical thermal, chemical and parasitic (vegetable micro-organisms) factors may under suitable conditions excite primary carcinoma. (10) The generalization of cancer occurs to the degree that the conditions in the passive parts of the body and the extending sequelæ of the heterotopic epithelial cells of the primary will permit. (11) Just as carcinomatous development so is the origin of all proliferation-tumors to be explained through cystogenesis, which by endogenous and ectogenous influences are changed in their course.

Cultivation of Microbes in a Sac.—The method of cultivating microbes in a sac of collodium suspended in the peritoneal cavity of animals has been applied to the bacteria of peripneumonia of cattle, of bubonic plague, of glanders and certain others by P. DJOUNKOWSKY (Arch. de Sc. Biolog. de St. Petersbourg, tome ix, No. i), since auto-intoxication of the microbes through their own products is prevented by these diffusing through the membrane, and since the phagocytic action of leucocytes is removed. Rabbits were employed in most cases and the recovering of the sac, which was found imbedded in a mass of newly-formed tissue, was generally a difficult task. The following methods were employed to facilitate this and to prevent pressure on the sac and diminution of the surface available for diffusion. (1) The sac was introduced into a tube of glass, to which it was fastened by means of a thread of silk; after closing the open ends of the cylinder with collodium, it was placed in the peritoneum. (2) A similar cylinder was used with a number of round or longitudinal orifices in its walls. These allow of better diffusion than in the first case. Where the sacs were left in a short time and in small animals, they resisted pressure sufficiently, but for longer duration, and in larger animals there was some difficulty of extraction and some danger of crushing, and in one case a piece of intestine was found strangulated in one of the orifices. It is well to introduce into the sac a small glass tube. (4) In order not to place into the peritoneal cavity of the same animal many sacs at the same time, one can enclose three or four of these with their small tubes in a larger, sealed sac. The sowing is practised with a pipette which pierces the pellicle, whereupon the orifice is closed with collodium. (6) For greater ease in sowing one can draw out and seal the end of the tube after having filled it. (7) The tubes were sometimes modified so that it was possible to remove part of the culture or the bouillon without performing a new laparotomy. To this effect one end of the tube was closed with a pellicle of collodium and the other drawn out and a piece of caoutchouc with a glass tube attached.

Concerning Nephrolysins.—Struck by the agreement between the results of clinical observation and the experimental work on nephrolysins published by Lindemann, Nefedieff and Bierry, G. ASCOLI and E. FIGARI (Berl. klin. Woch., June 16, 1902) undertook to continue the experiments begun by the authors just mentioned. Rabbits were given subcutaneously emulsion of recently extirpated dog's kidneys. The reaction which followed depended in part upon the quantity of emulsion used, but in nearly every case a local and a general reaction occurred and in many instances the experiments resulted fatally. The injection of renal emulsion causes in the rabbit's organism the production of a powerful nephrolysin. The presence of the latter cannot be demonstrated in the red blood cells; but a serum can be obtained which, after a latent period of four to eight days, produces an intense albuminuria, red blood cells and casts being also found in the urine. The kidney lesion, which is called forth by this serum, is not a transient one; albumin remains present in large

amounts for weeks and even for months. Similar sera, though less powerfully injurious, can be obtained following one-sided ligature of the ureter or after the removal of a single kidney. It appears that injury of a single kidney, whether in one's own or in a foreign organism, tends to abnormal metabolism and thus to the production of substances which may be called nephrolysins and which are capable of reacting as powerful poisons upon normal kidneys. The relation of this discovery to the tendency of nephritis to become chronic, is plain.

Finer Structure of Bacteria.—Prior to the examination of the fine granules in the cell-body of bacteria, little was known of their finer histological structure. P. ERNST (Correspbl. f. Schweiz. Arzt., July 14, 1902), their discoverer, relates how he first saw them in a bacillus isolated from a case of xerosis conjunctivæ and how he considered them as nuclear in nature since they stained intensely with methylene blue and Delafield's hematoxylin, since they resisted digestion and since it was thought that mitotic figures could be discerned. Several years have now passed and as yet little practical importance has accrued from the discovery, yet for the differential diagnosis between true and pseudo-diphtheria bacilli they have been of great value. Ernst has recently again taken up the subject, using intravital staining with methylene blue, or neutralroth, and has obtained most remarkable pictures, bringing out the granules in a way characteristic for each organism studied. Their true nature, however, still remains doubtful.

Primary Sarcoma of the Omentum.—An interesting report of this rare condition is presented by J. P. MILLER (Phil. Med. Journ., June 21, 1902). The patient, a woman aged fifty-five years, suffered from abdominal symptoms which never had permitted a definite diagnosis during life. The autopsy showed a number of soft, "strawberry" like nodules in the omentum, which were found to be endothelial sarcomata. Gall stones and a cirrhotic liver were also found, but all the other organs were perfectly normal. The author calls attention to the extreme rarity of primary sarcoma of the omentum and mentions the support which his case would lend to the doctrine of relationship between biliary lithiasis and malignant disease of the peritoneum which was formerly promulgated. He does not adhere to this belief, however, because of the great frequency of biliary calculi without this accompaniment.

Phases of the Malaria Parasite.—The unusually complicated nomenclature given to the various stages of development of the malarial organism, is, for descriptive purposes, an imperfect one. E. RAY LANKESTER (Proc. Royal Soc., May 31, 1902) suggests a new terminology, and at the same time indicates the different points in the development of the plasmodium. The spore which is needle-shaped is formed outside of the human body, and to this is given the name exotospore. Forty or fifty of these spores at a time enter the blood as the result of a mosquito bite, and each one entering a red blood cell, assumes the ameboid form and is called the amebula. This enlarges and breaks up into spherical spores (enhemospores) which are liberated with the destruction of the red blood cells. Some or all of the amebulæ derived from the enhemospores cease to break up into spores, but enlarge and, in the case of the estivo-autumnal parasite, become sausage-shaped and are known as crescents. The latter remain quiescent and separate into two groups, male and female, which are not distinguishable in the human blood-vessels. They are swallowed by the anopheles mosquito, in whose blood they carry on further the life-history of the parasite. The crescents are the sexual phase of the plasmodium. In the stomach of the mosquito they undergo two different modes of development. Both sexes which are known respectively as the egg-cell and the sperm-mother-cell are spherical; from the periphery of the latter there develop rapidly six or seven spermatozoa, which fertilize the egg-cells floating in the mosquito's stomach with the formation of the zygote. This increases in size, acquires a pyriform shape and expanding and contracting in the line of its long axis, is known as the vermicule. This breaks through the walls of the stomach into the blood-sinuses, nourishes itself on the insect's blood, becomes a spherical cyst (spore-cyst), enlarges and breaks up into an immense number of exotospores. The latter are liberated into the blood of the mosquito, whence they easily pass into the ducts of the salivary gland, and are readily conveyed by the stabbing beak into the human blood.

Classification of Thyroid Tumors.—An arrangement of the benign tumors of the thyroid based on their structure is proposed by PRATT (Boston Med. & Surg. Journ., July 3, 1902), with the claim that it is simpler and more satisfactory for surgical diagnosis. He divides them into three primary classes: (1) Simple adenoma, (2) fetal adenoma, and (3) papilliferous adenoma. The first is the most common and includes 90 per cent. of thyroid tumors. It consists of closed vesicles filled with colloid and in structure resembles the normal thyroid. These may undergo secondary degenerative changes and form colloid, cystic, or fibroid goitres. The structure of the fetal adenoma resembles the fetal thyroid. It is made up of solid masses or rosettes of epithelial cells, with little or no colloid. The third class includes those which contain branching papillæ lying in cystic spaces, developing either from the walls of old cysts or true adenocystoma resembling those of the ovary.

Contribution to the Study of Binuclear Cells.—In his study of double-nucleated cells, A. KOUTCHOUK (Arch. de Scienc. Biolog. de St. Petersbourg, tome ix, No. 1) found in the liver of the normal guinea-pig, as many as 9.88 per cent. Where the common bile-duct had been ligated and the animal had survived for three days, this number dropped to 5.86 per cent. Thus this ligation seemed to act strongly upon the body of the cells in favoring direct division in those with two nuclei, but it did not act in the same sense upon the cellular nuclei. No proof is thus added to the doctrine of biological autonomy of the principal constituents of the cell: its body and its nucleus. The ligation of the common duct acts differently upon the direct and indirect division of the hepatic cells; this fact proves again that the karyokinetic process obeys other laws than the process of direct division.

Viscosity of Blood in Nephritis.—In the majority of cases of nephritis examined, C. HIRSCH and C. BECK (Deutsch. Arch. f. klin. Med., Vol. 72, Nos. 5 and 6) could not find an increased viscosity of the blood; on the contrary, this was generally much reduced owing to hydremia. The internal friction of the blood was above the normal in only 12.5 per cent., and here edemas and hydremia were absent. In some of the cases this condition appeared only with the onset of uremic symptoms, but further clinical and experimental study is necessary to explain the significance of this. The old hypothesis of Bright that the cardiac hypertrophy in nephritis is due to direct irritation of the heart seems to be most rational in the present stage of our knowledge.

PHYSIOLOGY.

Independence of the Lobes of the Liver.—Through aqueous injections into the veins of the liver Glénard and Siraud in 1895 demonstrated that the areas

to which the branches of the portal vein are distributed are independent one of the other, and that, while the vascular groups of each lobe intercommunicate, there is no vascular connection between the right and left lobes. H. SÉRÉGÉ (Jour. de Méd. de Bordeaux, May 25, June 1 and 8, 1902) in recent experiments with methylene blue injections confirms these findings and demonstrates that coloring matter carried by the branch of the portal vein to the left lobe, penetrates the lobulus quadratus in its entirety, but leaves the right lobe and lobulus Spigelii unstained; thus establishing the line of demarcation between the right and left side of the liver. A further series of experiments, the author maintains, has demonstrated two distinct portal currents; a mesenteric to the right lobe, and a splenic to the left. This conclusion is based upon the following findings: (1) Lack of homogeneity in the portal blood, established by difference in density, etc., between the splenic and mesenteric serums. (2) Constant localization in the corresponding hepatic territory of emboli induced by intravenous injection in a given intestinal area. It is believed that definite hepatic areas are in relation with equally definite areas of the digestive tube; what is spoken of as the gastrosplenohepatic connection placing the spleen and stomach in relation with the left liver lobe, and the enteropancreaticohepatic, establishing relations between intestine, pancreas, and right lobe. Additional proof of the separate physiological as well as anatomical functions of the two lobes is afforded by experiments which show that the urea content of the left lobe reaches its maximum two hours after eating, the time corresponding to gastric digestion; urea of the right lobe remaining stationary until the fourth hour (when pancreas and intestines participate in digestive function), increasing from that time and reaching the maximum at the sixth hour. These results are, in the writer's belief, proof at once of a double portal current, and distinct relation between the gastric function and left lobe of the liver as well as the intestinal with the right. Clinical evidence of these relations is offered in the localization of morbid hepatic processes in the left lobe, in certain alcoholic cases in which stomach and spleen are affected; and also by Glénard's observation that hepatic disease was limited to the right lobe in 70 per cent. of his diabetic cases.

Intestinal Absorption of Sugars.—To determine the difference in the rate of absorption of various simple sugars, was the object of a research by J. NAGANO (Pflüger's Archiv. für Physiol., May 27, 1902). The rate of absorption of a solution of a substance in the intestine is a function both of the selective activity of the intestinal cells and of the physico-chemical constitution of the dissolved substance. In connection with this must be taken the discovery of Hôber that the rapidity of absorption of different salts is related to their rate of diffusion. The rôle played by the intestinal mucous membrane in relation to the differences in the rate of diffusion of the various sugars, has not yet been determined. Having an important bearing on the object of this research, it is interesting to note that those sugars that contain three, six and nine carbon atoms have nutritive value, those that contain five and seven have none, and that the peutoses are burned up in the organism with greater difficulty than the hexoses. The author investigated the stereo-isomeric sugars belonging to certain groups and found that the rates of absorption of these sugars were different. He discovered that the sugars with five carbon atoms are absorbed more slowly than the sugars with six carbon atoms. The rate of the absorption of the water contained in the solutions of the different sugars, presented similar differences to those of the sugars dissolved. If the concentration of the sugar be increased, the absorption of the water is diminished. In the upper part of the intestine the sugar is absorbed relatively faster than the water, but in the lower portion of the canal the water is absorbed relatively faster than the sugar. The author interprets his results as follows: Inasmuch as the rates of diffusion of the various sugars have not yet been determined, one is not in a position to say whether the observed differences in absorption have any relation to the rates of diffusion or not. The fact that peutoses are more slowly absorbed than hexoses, has probably some connection with the fact that the former are more slowly oxidized in the tissues than the latter. The slower absorption of mannose may likewise be attributed to a slower assimilation. On the other hand, gelactose presents the opposite phenomenon. Although its absorption is greater than that of glucose, it is consumed in the organism to a much less degree than the latter. In attempting to explain these phenomena on a physical basis, one has but to consider that in relation to the rate of absorption, the intestinal mucosa does not play an indifferent rôle. It is quite possible that the mucosa is more easily penetrable by a sugar-molecule of a certain configuration than by one of a different configuration.

Artificial Fertilization.—That the spermatozoon is not always essential for the production of fertilization has already been shown by Loeb, and is strikingly exemplified in the experiments of M. H. FISHER (Am. Jour. of Physiol., June 21, 1902) on artificial parthenogenesis in annelids. He succeeded in raising the unfertilized eggs of *amphitrite* to an advanced stage of segmentation, by adding a small amount of calcium to the sea-water, or by simply agitating the latter. In *nereis* he found that a certain increase in the osmotic pressure of the sea-water is capable of bringing about the development of the unfertilized eggs. A. P. Matthews had produced fertilization in the starfish by means of mechanical agitation. According to the author, the presence of calcium ions is necessary for the production of fertilization in *amphitrite*. It is believed by Loeb that the spermatozoon does not act as a stimulus to the egg, but simply as a catalyzer that accelerates a process which starts of its own accord. The addition of calcium in *amphitrite*, or the abstraction of water in *nereis*, serves only as a method of accelerating a process that occurs anyway. But this accelerated karyokinesis is essential to the further development of the egg, for if left undisturbed in sea-water, the egg reaches only the first stage of segmentation and then dies.

The Resuscitation of the Heart.—Medical and physiological literature, according to A. KULIABKO (Pflüger's Archiv. für Physiol., June 3, 1902), affords many examples of the extraordinary vitality of the heart, which has for a long time been regarded not incorrectly as the *ultimum moriens* of the whole organism. This postmortem vitality, while greatest in cold-blooded animals and while also markedly present in warm-blooded animals, is also to be seen in human beings. The author reports the observation of Rousseau, who at the autopsy on the body of a woman executed twenty-nine hours before, saw the heart still beating. The cessation of the heart-beat is no criterion of the complete death of this organ. Even when the heart has remained quiescent for many hours it may again be aroused to pulsate, if warmed and defibrinated arterial blood be caused to flow through the heart. Langendorff succeeded in thus arousing the cardiac beat after a pause of two hours. The use of physiological salt solution instead of blood leads to an early relaxation and cessation of the heart-beat; if the injection of blood

is renewed the cardiac impulse returns. An artificial serum invented by Locke, containing the mineral constituents of the blood in the same proportion as they are contained in the latter, together with 0.1 per cent. of dextrose, is capable of maintaining the beat of an isolated dog's heart with undiminished energy for more than twelve hours. If after a longer or a shorter pause in the heart-beat, the above solution be caused to flow through the cardiac chambers, after a few seconds the heart begins again to contract. At first the contractions are weak and irregular and confined to the openings of the vena cava, then they gradually increase in strength, extend over the auricles and the right ventricle and finally involve the whole heart. An isolated dog's heart in which an artificial circulation is maintained continues to pulsate; if it is then placed on ice, within five minutes the contractions cease. After a lapse of eighteen hours, if the heart be removed from the ice and again injected with Locke's solution, in less than half a minute the pulsations return and continue for four and a half hours. The author succeeded in restoring the contractions in a dog's heart which had been kept on the ice for forty-four hours. He draws the following conclusions from his experiments: The suppression of vital phenomena by means of cold, metabolic waste products, poisoning or chemical changes in the environment, does not necessarily imply the death of the organ. The limits of this cardiac pause are affected by the individual peculiarities of the animal, the state of nutrition, age, etc. At any rate they cannot be far from twenty-four to forty-four hours.

Alcohol—Food or Poison?—A question which of late years has given rise to considerable debate according to Prof. KASSOWITZ (Pflüger's Archiv. für Physiol., June 3, 1902), is whether a substance in the same organism can act at the same time as a poison and as a food. With respect to alcohol, the investigations of the author have answered this question in the negative. His conclusions are as follows: The belief in the nutritive value of alcohol depends on the supposition that a portion of the alcohol is, in the process of its metabolism, directly split up or burned, without first having been built up into the protoplasmic substance. Since the logical sequence of this supposition, namely, that foods of equal value as fuel can substitute each other, has been refuted by reliable experiments, then the supposition of a direct metabolism of substances outside of the protoplasmic tissues can no longer be maintained. The only remaining possibility, namely, that all foods are assimilated into the structure of the protoplasm and that all the products of metabolism are the result of the splitting up of this chemical unity, corresponds best to the facts that are at hand and contradicts none of them. This conception implies an extreme complexity of the protoplasmic molecule, with a corresponding extremely unstable equilibrium. Every stimulus and every chemically active poison causes a disorganization of the labile molecules of protoplasm. Since alcohol disturbs protoplasm not only as a stimulus but also as a poison it cannot at the same time be assimilated and employed as a food. Under the toxic influence of alcohol, protoplasm is disorganized either with the splitting off of fat and of nitrogenous waste products, or with the splitting off and formation of gelatin-yielding tissues under the form of connective-tissue fibers. In the first case the toxic effect of alcohol is an increased nitrogenous elimination, and in the second case the effect is a nitrogenous retention, which manifests itself in the formation of inflammatory products in the different organs and tissues. After a short period of stimulation, alcohol paralyzes the centers of innervation in the musculature, which through its diminished activity produces less carbonic acid. The diminution of carbonic acid and nitrogen observed in experiments on the metabolism of alcohol, signifies, therefore, not a sparing of the tissue-fats and tissue-proteids, but is an indirect result of the toxic action of alcohol. In thorough harmony with this theoretical conception is the observation that the substitution of a portion of one's non-nitrogenous food by a quantity of alcohol of equal caloric value, is associated with a diminished working-capacity and a dissipation of the vital resources. Since by means of these conclusive facts, the uselessness as a food, of alcohol consumed in the system has been empirically shown, it has therefore been proved that the nutritive property of a substance can not depend upon oxidation in the organism. The practical lesson, according to Kassowitz, to be learned from this theoretical deduction, which is in complete agreement with empirical observation, is short and to the point, namely, that neither with the healthy nor with the sick, should alcohol serve the purposes of a food.

The Nature of Adrenalin.—The numerous uses to which this substance is being applied in practical medicine impart a peculiar interest to the inquiry whether it be the active principal of the suprarenals or not. This question is answered in the affirmative by T. B. ALDRICH (Amer. Jour. of Physiol., July 1, 1902), who adduces the following as proof: All concentrated aqueous extracts of the suprarenal glands reduce Fehling's solution on boiling. The adrenalin obtained from a certain amount of the aqueous extract reduces Fehling's solution approximately in the same proportion as the original extract from which it was made. The mother-liquor from which adrenalin has been removed does not reduce Fehling's solution. Adrenalin is not a reduced form of the active principle, since it is obtained without the use of a reducing agent. Adrenalin is, moreover, the same whether using sodium carbonate solution or ammonium hydrate as a precipitant. Epinephrin and other questionable products obtained from the gland must be an oxidized or at least a changed form of adrenalin, since they do not reduce Fehling's solution. Adrenalin is identical with the copper-sulphate reducing base, the blood-pressure raising body, as found in the gland, and is, therefore, the active principle of the same and not a modified form as Abel contends.

Investigations on Muscle-Juice.—Assuming that hypertrophied muscle contains more albuminous matter and less stroma and that the muscle-fiber loses proteid matter in atrophic condition—in other words, that the muscle in a favorable nutritive state in convalescence and in athletic subjects yields more juice on expression than when flabby and below the normal in size, R. VOGEL (Deutsch. Arch. f. klin. Med., Vol. 72, Nos. 3 and 4) conducted a number of experiments with the view of determining the state of the muscle by the amount of fluid obtained. Strangely, however, the musculature of cachetic persons yielded most, but it was soon found that this was due to two irrelevant conditions, through edematous infiltration and through the rigor mortis. It was further found that when a muscle was taken still warm from the body absolutely no fluid could be expressed; if some time was allowed to elapse between death and the experiment, the amount increased day by day until the sixteenth day, when putrefaction was beginning, just one-half of the weight of the muscle passed through the strainer. The juice obtained during the first hours after death was alkaline; if the muscle was older it was strongly acid, but if still older this acidity gradually diminished. Since most of the albuminous matter of the muscle passed into the fluid, the process of liquefaction may be looked upon

as a postmortal proteolysis. It is thus clear that the storing of meat for several days, as practised by butchers, really improves it, since it renders it less tough. There is no doubt that the juice possesses a highly nutritive value, since it contains 10 per cent. of dry residue, of which 8.2 per cent. represents albumin, 0.09 per cent. creatin, xanthin, etc., 1.2 per cent. ash and 0.5 per cent. fat, and since the albumin is present in an easily assimilable form and the salts stimulate the appetite. To determine whether liquefaction is due to bacteria, the meat was examined for these at various stages. When recent, the interior was sterile; after six hours a slight growth was obtained; later their number increased much more rapidly. To ascribe proteolysis to bacteria, this would have to occur slowly at first and more rapidly subsequently, which is not the case. Nor is the developing acidity the cause, since this constantly diminishes after it has reached its maximum during the first days and, furthermore, the addition of alkalies seems to make no difference in the amount of fluid obtained. It is probable that undetermined enzymes are responsible for the process which also goes on in the living muscle, where, however, the blood rapidly brings new material unless a cachexia exists, when the absence of a sufficient amount of this material shows itself in atrophy. When an artificial thrombosis is developed in the aorta of an animal by ligating the aorta, a considerable amount of fluid can be expressed from the muscles of the legs several hours later. Similarly, an artificial solution of muscle-proteid can be produced by actively exercising muscles as in strychnine-poisoning, which goes to show that proteolysis is a cardinal property of the living tissue.

Action of Baths on Metabolism.—The results of the studies of H. WINTERNITZ (Deutsch. Arch. f. klin. Med., Vol. 72, No. 3 and 4) show that (1) under the influence of sand-baths a considerable increase of oxygen consumption and carbonic-acid discharge takes place, which exceeds that occurring in fevers without raising the temperature much or influencing the general condition. (2) Mud-baths cause no noticeable changes in oxidation, while the application to the skin of irritants, such as mustard, shows an increased production of heat and carbonic acid and increased consumption of oxygen. (3) In carbonic acid baths an absorption of the gas takes place. (4) Sulphur baths have no influence upon the exchange of gases.

Nitrogenous Substance in the Urine of Fasting Animals.—Based upon a large number of experiments, R. DE BOHTLINGK (Arch. de Sc. Biolog. de St. Petersburg, Tome ix, No. 1) arrives at the following conclusions: (1) Different animals of the same species and place, and under the same conditions exhibit such difference in weight on absolute starvation, as do not stand in relation with the unit of weight and time of fasting. (2) The degree of fall in temperature during the last days of fasting does not correspond to the change in the general condition of the animals. (3) The alkaline reaction of the urine of cats is to be considered normal, although they belong to the class of carnivora. (4) The specific gravity of the urine of fasting animals reaches a high figure and does not fall easily with the last days of starvation. (5) When passing from a period of feeding to one of starvation the total nitrogen in the urine always is found increased relatively, and, in half the cases, absolutely, in the case of rabbits. (6) With cats it diminished distinctly in the relative as well as in the absolute sense. (7) The amount of urea increased or diminished depending on whether the total nitrogen increased or diminished in that particular animal. (8) Contrasted with every unity of weight and time, rabbits eliminate, in the normal as well as in the starving state much less ammonia in the urine than cats. (9) With rabbits it could not be proven that the elimination of ammonia is influenced in a constant or appreciable way by starvation. (10) With cats, however, there was a constant and pronounced diminution. (11) The increased decomposition of albuminoids toward the end of the starvation-period and the increased nitrogen elimination which results, was manifest in all the experiments on rabbits, and absent in those on cats. (12) The relation between the nitrogen of the urea and the total nitrogen in rabbits was found increased during fasting in five and diminished in one; in the main there was a notable increase. (13) With cats the same relation was found increased in two and diminished in four; on taking the average, it is feebly diminished. (14) During the last hours of starvation with rabbits and the last days with cats, one observes a strong diminution of the oxidizing power of the organism, since only a small amount of the urinary nitrogen appears as urea. (15) The relation between the ammoniacal and the total nitrogen is notably diminished in all the experiments on rabbits. (16) With cats, it is found increased in half and diminished in the other half. (17) During the last hours or days one, however, observes an increase in this relation. (18) One can also determine during the inanition, a very manifest diminution in the quantity of the excrements and of their nitrogen and dry residue.

The Oxidizing Ferment of Milk.—Since 1881 certain reactions have been known in the case of cow's and human milk, which indicate the presence of an oxidizing ferment. According to C. GILLET (Jour. de Physiol. et de Pathol. Gén., May 15, 1902), the first to draw attention to these reactions was Arnold, who showed that fresh cow's milk on the addition of a little tincture of guaiac gives a blue color of varying intensity. The discoverer of this phenomenon thought it was due to the presence of ozone, but it is now known to be produced by an oxidase in the presence of oxygenated water. A better reaction is that caused by the addition of 1 cc. of an aqueous solution of guaiacol, crystallized from a 1 per cent. solution, to 1 cc. of fresh milk when, in the presence of oxygenated water, a garnet-red coloration results. The oxidase of milk has the properties of the diastases, since it is destroyed at a temperature of 79°, since it does not dialyze, and since it filters through porcelain with difficulty; moreover, it is not affected by chloroform and ether. Woman's milk also gives the above reactions, but in contrast to those afforded by cow's milk, they are inconstant, accidental and of little intensity. In cow's milk the ferment is diffused, with no relation to any anatomical element; on the other hand, in woman's milk it is connected with the presence of polynuclear leucocytes, which fact explains why the reaction is always present in colostrum. Occasionally the reaction is found apart from the colostral period, at a time when no leucocytes can be found by the microscope. Probably in this case the reaction is to be attributed to a more or less acute and transitory return of the colostral state, with no microscopical evidence of the same. However, one should not conclude that a woman's milk is imperfect unless the reaction be intense, durable and present in the milk of both breasts.

Contributions to the Knowledge of Human Bile.—Nine patients having a biliary fistula afforded J. BRAND (Pflüger's Arch. f. Physiol., June 3, 1902) excellent opportunities for making a comprehensive study of the bile. The quantity of this secretion obtained from a complete biliary fistula varies greatly from hour to hour; the total daily output ranges from 500 to 1,100

cc. During the night the secretion declines, reaches a minimum in the early morning hours, rises rapidly after awakening, and attains its maximum in the early afternoon. The bile obtained from an incomplete fistula has more solids than that flowing from a complete sinus. There are two reasons for this; in the first place, constituents of the bile are absorbed from the intestinal canal and resecreted by the liver; in the second place, inspissation of the bile in the biliary passages leads to its greater concentration. The solids of bile obtained from a biliary fistula amount to 1-4 per cent., while those of bile obtained from the gall-bladder reach as high as 20 per cent. Only the organic constituents of the bile have any strict relationship with the general metabolism, of which they furnish an exact measure. Normal liver-bile is obtained only when a quantity of biliary acids is daily injected into the intestine, equal to that which flows from the biliary fistula. This provision is usually overlooked in animal and human experimentation. Liver bile is of a golden-yellow color, which it derives from the presence of bilirubin. All bile contains a large quantity of urobilinogen; hematoporphyrin was present in one specimen which was tested for it. The reaction of bile is neutral or alkaline, the latter reaction being derived from the presence of mucus; but it is not parallel to the quantity of the latter. Bile contains sulphur in the form of ethereal sulphuric acid. The molecular concentration of fistula and bladder bile is the same as that of the blood; concentrated bile contains more of the specific biliary constituents and less of the inorganic salts. In the gall-bladder and biliary passages a solution of salts similar to those contained in the blood is absorbed, and mucus is secreted to take its place. A high content of mucus is associated with a high content of salts; the reason for this relationship is unknown. Likewise, the association between tne amount of the organic constituents and the amount of water has not been explained; probably these constituents compensate each other. Lastly, bile conducts electricity much better than blood, on account of the greater proportion of inorganic salts and the organic salts contained in the former.

The Voluntary Erection of Human Hair.—The influence of violent emotion and the reflex action of cold are known to cause a bulging of the hair-follicles (cutis anserina) and an erection of the hairs, through the contraction of the arectores pilorum muscles attached to the hair-follicles. S. S. MAXWELL (Amer. Jour. of Physiol., July 1, 1902) reports the case of a young man who could produce bulging of the hair-follicles and erection of the hair at will. This condition was best seen on the hips, thighs, back and arms. There was no edema, no resemblance to factitious urticaria or any other of the well-known reflexes seen in highly neurotic individuals. There was no marked change in color, only a slight increase of pallor due to a vasomotor change. Associated with this condition was a remarkable development of the dermal structures. The subject had an unusual control of the facial muscles; he could move the skin of his scalp freely in various directions, he could move his ears simultaneously, alternately or singly at will. His powers were not the result of practice, but were apparently inherited from his father who possessed them to a considerable degree. It seems that in the lower animals a high development of the panniculus structures and the power of erection of the hair go together. The subject experienced modifications of the respiratory movements whenever he induced the phenomenon. He felt as if the chest was held rather more than usual in the inspiratory phase and the breathing deepened or was momentarily suspended. Erection of the hairs was also accompanied by sensations of pleasure, and afforded feelings of relief, especially when the patient suffered from headache. The erection of the papules was accompanied by vasomotor changes shown by a contraction in volume of the finger. Dilatation of the pupil also accompanied it. It seems as if the relation between dilatation of the pupil and vasomotor constriction, so well known by experiment, obtains here also. The author believes that the voluntary control of the arrectores pilorum muscles seems to be correlated with an inherited and unusual neuromuscular and dermal development. A biopsy was performed on the subject to determine whether the arrectores pilorum contain striated muscle or not. Only smooth muscle was found. Here was an example of smooth muscle being voluntary at the same time. The old distinction between striated or voluntary, and unstriated or involuntary muscle can no longer hold. The difference between muscles must rather depend on the manner and rate of contraction. It seems that striated muscles occur when prompt and rapid movement is necessary.

The Electrolysis of Hemoglobin.—In the course of his paper describing his latest chemicophysical researches on hemoglobin, A. GAMGEE (Proc. of Royal Soc., May 31, 1902) gives the interesting results of the electrolysis of this substance. The electrolysis of a pure solution of oxyhemoglobin causes a separation of this compound in a colloidal but perfectly soluble form. If the experiment be carried on in a cell with an animal membrane separating the anode from the cathode, as the result of the action of the electric current there occurs a separation of colloidal hemoglobin in the anode compartment; the precipitate falls as a beautiful red cloud with a perfectly colorless supernatant liquid. As the result of the further action of the current, a rapid and total transfer of the colloidal hemoglobin from the anode to the cathode cell takes place. There is evidence which proves that the precipitated colloidal and at the same time soluble hemoglobin represents the undecomposed molecule of the blood coloring-matter. The transfer of this colloid through an animal membrane, is explained on the basis of Quincke's electro-endosmosis. These interesting phenomena are also observed in the case of CO. hemoglobin. Oxyhemoglobin differs from most colloids in the facility with which it crystallizes, and furnishes a complete analogy with silicic acid. The amount of hemoglobin in the red blood-corpuscles is so large that in most animals the whole of the water of the blood would not be sufficient to dissolve it. Therefore, this substance is not in a state of solution, but is probably present in its colloidal form. The facility with which it traverses animal membranes under electrolysis suggests to physiologists the possibility that certain of the phenomena of absorption in the animal body may be closely connected with electromotive changes in the tissues concerned.

THERAPEUTICS.

Cure of Tuberculous Meningitis by Creosote.—Since lumbar puncture for diagnosis was introduced by Quinke, cases of tuberculous meningitis have been observed which, contrary to the previously accepted belief, resulted in recovery. THOMALLA (Berl. klin. Woch., June 16, 1902) reports a case of tuberculous meningitis in which recovery followed the use of creosote in liberal doses. The diagnosis was confirmed by Professors Gerhard and Von Michel. The patient was a male, aged twenty, whose parents had died of tuberculosis and who had been cauterized for local tuberculous processes of the tonsils, tongue and neck. For several years the patient suffered from an incurable fistula *in ano*. During the progress of the case tubercles were found in the

choroid of the left eye. Creosote was administered from the beginning of the attack in increasing doses, until the daily quantity, four and a half grams, divided into three doses and given in capsules, was reached. In addition to the use of creosote the treatment relied on in this case was chiefly the administration of potassium iodide and the painstaking nourishment of the patient. Chaumier regards creosote as valuable in these cases only if given in doses of at least two grams daily, and only then if combined with outdoor treatment. Burlureaux recommends the injection of creosote in increasing doses up to five grams. Thomalla places the limit at the point of toleration and remarks that creosote is found in the blood-serum in proportion to the dose given. Not only the daily quantity but the individual dose should be as large as possible inasmuch as the drug is very rapidly eliminated. The efficient working of the drug depends upon the saturation of diseased areas with this really powerful bactericide.

Cure of Cancer by Injection of Adamkiewicz's Serum.—After a series of operations involving the breasts and axillæ for recurrent carcinoma the surgeons entrusted with the treatment of the case despaired of surgical cure. The ribs were diseased, a swelling had already appeared above the clavicle, the arm was edematous and painful, and the mediastinum in all probability was involved. The pathological diagnosis was repeatedly confirmed. The surgeons having abandoned the case L. KUGEL (Berl. klin. Woch., June 16, 1902) began the injection of half-gram doses of Adamkiewicz's serum (cancroin). After twenty injections the pain and edema of the arm disappeared. Doses of a gram were tried and abandoned on account of the nausea, palpitation and dizziness which were produced. The treatment was continued, however, half-gram doses being given daily for a period of twenty days, and repeated for a similar period after an interval of several days. After three months the injections were made only every other day, and the pauses after each series of twenty injections were prolonged. During the first four months of this treatment it was noticed that the enlarged cervical gland did not increase in size, as it had previously done. After fifteen months the glandular swelling above the clavical disappeared, and improvement was noticed in all the diseased localities. The patient's general condition also changed markedly for the better.

Treatment of Pneumonia.—The value of the antipneumococcic serum in the treatment of pneumonia is favorably commented on by B. W. GOLDSBOROUGH (Jour. Am. Med. Assoc., June 28, 1902). He reports nine cases in which there was a marked change within eight hours and in most the crisis was successfully passed within forty-eight hours. The serum may be given in connection with other remedies; he injected 20 c.c. and repeated the dose in eight hours if no favorable change took place. The best results are obtained in lobar pneumonias, although catarrhal and bronchopneumonias are also greatly benefited even with the possibility of a fixed infection. Of the author's cases, two died, one having been practically in extremis, the other already afflicted with a metastatic pulmonary sarcoma. The author has also tabulated 447 cases, including 61 treated with antidiphtheritic serum, which show 15.7 per-cent. of deaths. Of 395 cases treated with antipneumococcic serum alone the percentage is 16.5. The percentage of deaths from pneumonia in various hospitals shows that the best results obtained are 75 per cent. of recoveries.

Treatment of Cancer with the Serum of Young Animals.—The facts that cancer very rarely indeed appears in life very early or even before the twentieth year and that probably the age of growth and development confers a virtual immunity toward malign neoplasms suggested to A. KORBSCH of Krappitz (La sem. med., 1902, No. 23) the feasibility of treating cancer with the serum of various animals. The early results of his experiments have been encouraging. In the order of descending efficacy he has found the serum of the ewe best, then that of the hog and finally that of the calf. This statement is in direct agreement with the recent teachings of Stricken that of all domestic animals the sheep and the swine are least frequently victimized by new growths. Korbsch gives the serum in a daily dose of from 30 to 50 grams hypodermatically or by preference through the mouth. Ulcerating neoplasms he dresses either with the serum itself or with a normal solution of chloride of sodium. Under their influence the ulcer loses its characteristics and in a short time begins to granulate over, and the adjoining tissues soon become softened. The neoplasms which yield best to this treatment are such as are usually amenable to any form of therapeusis—for example, growths upon the back of the nose. Next in order of amenability are cancers of the lip, although growths in succulent parts are apt to be refractory. He cites one case of a neoplasm in the cardiac end of the stomach which made deglutition impossible. After about one month of subcutaneous treatment so much improvement occurred that the patient was able to swallow all classes of food conveniently. It is, of course, necessary to procure and prepare the serum under very rigid aseptic precautions and to examine the animals very carefully before using their blood. Administration of this serum by mouth is never attended by any reaction whatever, while on the other hand after the dose of 50 grams hypodermatically is passed a slight elevation of temperature to perhaps 39.5° C. is noted. Korbsch thinks that the employment of still greater quantities of the serum will have much more marked effects upon the disease. In order to avoid the injection of very large bulk of serum he suggests the utility of dried preparations which can later be turned into concentrated watery solution, prior to administration.

Gelatin in Dysentery.—Favorable results from the use of gelatin in acute and chronic dysentery are described by A. GERALDINI (Gazz. degli Osped., June 22, 1902). Its special value in the treatment of this condition appears to lie in its prompt control of enterorrhagia, though it favorably influences other symptoms as well. The remedy was used in enemas, 200 cc. of a two-per-cent. solution; or hypodermatically, 5 cc. of a thirty-per-cent. solution injected in the gluteal region one to three times daily. The combined treatment, one hypodermic and two enemas daily, was also used with good effect.

Therapeutics of Anemic Conditions.—According to the unanimous opinion of many authors, the effect of iron in chlorosis cannot be replaced by alimentation, says H. METALL (Med. Chirurg. Centralbl., June, 1902), since typical cases cannot be cured even by forced feeding. If anemic girls be placed on a full diet, they may accumulate fat, yet the quantity of hemoglobin in the blood will increase only a few percentages and will then permanently remain at this level. The necessity of iron then being proven, it only remains to be discovered which form of iron is most serviceable. The author has received the most satisfactory results with the peptomanganate of iron which is easily absorbed by the entire intestinal tract and which evokes no concomitant effects. In twelve out of twenty-three the hemoglobin was normal in fourteen days; in five after three weeks, and in five after a month. In acute anemia good results were also obtained by this mode of treatment.

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SATURDAY, AUGUST 9, 1902.

SOME PRACTICAL MOSQUITO WORK.

IN the issue of the MEDICAL NEWS of Sept. 7, 1901, under the caption "Biology and Comfort" we referred editorially to a plan of the North Shore Improvement Society of Long Island for getting rid of the mosquito—a plan both large in its general comprehensiveness, and thorough in the elaboration of its details.

At that time mainly through the offices of the Cold Spring Biological Laboratory this association was able to command the services of experts second to none in this country.

From the printed report which we have just received the hopes entertained by the originators of the plan have been most brilliantly realized, for from a medical and sanitary standpoint the "Report on Plans for the Extermination of Mosquitos on the North Shore of Long Island between Hempstead Harbor and Cold Spring Harbor" is a remarkable document and reflects great credit on all concerned in its production.

That a group of property owners should have fathered this enterprise is an evidence not only of their practical philanthropy, for such a piece of work must have been costly, but of a high appreciation of scientific sanitary work, and of communal pride. No such careful, thorough, and extensive study of a biological problem is known to us apart from enterprises under government control.

The report is not only technically scientific in value, but it is highly practical. Every breeding place of *Anopheles* in this localized area has been noted, from the rain water pools and the hoof tracks across swamps, to Mr. X's water barrel and the tin can behind Mr. Y's stable. At first glance the less enterprising owners of estates in other parts of the island are disposed to discuss with derision what they consider an exposé of their neighbors' affliction; and the north shore has shared a temporary notoriety like unto the Jerseys in the matter of mosquito fame. As a matter of fact there are less mosquitoes on the north shore than on any part of Long Island because the bluffs and hills afford only small, limited areas for the breeding places which are mentioned in the report; and it is not too much to prophesy that in five years this mosquito policed area will be free absolutely from the pest.

Apart from the question of the extermination of the mosquitoes themselves the logical results of this report will tend to destroy the few lingering strongholds of malaria now present in the island. So soon as a study of these malarial infected areas can be made and brought into co-ordination with the facts contained in this present report on the transmitting agents malaria can be most thoroughly eradicated from the beautiful north shore.

CONTAGIOUS EYE DISEASES IN NEW YORK CITY SCHOOLS.

THE discussion on contagious eye diseases in the schools of New York City which occupied the New York Academy of Medicine at its last meeting before the vacation (see MEDICAL NEWS, this week, page 279) disclosed a rather unexpectedly alarming state of affairs. Few medical men and probably no one outside of the medical profession realized the amount of danger in this regard, or the extent of the evil as it already exists, and its possibilities for the disturbance of the vision of many thousands of our children. Dr. Richard Derby, an excellent and conservative authority in the matter, found on investigation that in two crowded schools in the lower East side of New York City about 20 per cent. of the pupils were suffering from contagious eye diseases. A large proportion of the cases were of so severe a type that they would require operative procedure before a cure could be reasonably hoped for. Infectious eye affections in stages of development in which they were no longer con-

tagious, were not included in the report promulgated by Dr. Derby.

Needless to say this is a very serious state of affairs. Practically all of the severe cases mentioned will recover only with limited vision and very few of the sufferers will be without some disturbance of sight as the result of the affection. Beyond this, however, there is the question of the conveyance of the disease to as yet unaffected children. The present system of school inspection is totally inadequate to prevent this. Patients suffering from virulent contagious ophthalmia in its early stages when contagion is most active, may present such slight external signs of eye trouble as to escape the notice of the teacher. Under the present regulations such children may never be referred to the school physician at all. The only precaution that would insure the discovery of all contagious eye diseases would be the eversion of the lids of all the pupils by an expert trained in the recognition of such diseases. The ordinary practitioner might easily miss the premonitory signs, and without serious discredit to himself, since specialized knowledge is required for their diagnosis, and in some cases the symptoms are very obscure.

As it is, some of the medical school inspectors, in their desire to protect the other children from possible danger, have occasionally sent pupils home from school as sufferers from contagious ophthalmia when they were really affected with nothing more serious than hyperemia of the conjunctiva as a consequence of uncorrected refraction errors or simple conjunctivitis from some non-infectionally irritant cause. On several occasions this has led to unfortunate clashes of opinion, to the detriment of the authority of the school inspector—always an unfortunate occurrence if there is to be proper cooperation between the teachers and the physician in favor of effective school hygiene. Besides, medical inspectors of schools, after such an experience, are apt to be less strict in demanding that pupils with even slight eye trouble shall be referred to them, and so contagious diseases are allowed to exist under circumstances that rather favor their spread.

Knowledge is the first step toward successful reform, and even the limited statistics at hand have aroused the attention of the New York City board of health and at the Academy meeting the Commissioner of Health promised his active cooperation for the suppression of the evils that are shown to exist. It is extremely improbable that a census of the schools other than those of the East side, where there is a large recently immigrant population, would show anything like the same dangers from contagious ophthalmia in other parts of the city. Undoubtedly, however, there are cases in practically all the schools and unless proper precautions are taken the disease will spread even among the native population. In certain parts of Europe a large proportion of the people are, as the result of neglect, seriously affected by this disease. The school medical census, prepared at the end of the school year under the direction of the board of health, will doubtless furnish a basis for the institution and enforcement of regulations that will not only prove preventive of contagion but lead to the eventual removal of this danger from the community.

Besides the schools, as was pointed out at the Academy meeting, the public baths present unfortunately favorable opportunities for the spread of contagious eye diseases. Many ophthalmologists of large experience in the various New York City eye dispensaries are convinced that the free bathing houses are the source of most of the severe conjunctivitis which is seen during the summer months. Some of this is due to the careless use of towels in common, but much of it seems to be due directly to infection from other sources—the water, the hands of companion bathers or their touching of moist surfaces after rubbing their eyes. This would seem to suggest that greater care be exercised with regard to the permitting of promiscuous bathing and insistence on the regulation that those with suspicious appearances of the eyes shall not be permitted to bathe unless they have a physician's certificate stating that they are not suffering from a contagious eye disease. Such a certificate would not be difficult to obtain from an eye dispensary or other trustworthy source. The enforcement of such a regulation would undoubtedly exclude from the city baths many individuals who need regular applications of clean water, but the common good must be first consulted in a matter so serious as this.

The present state of affairs in our New York City public charitable institutions with regard to contagious eye diseases shows how much can be accomplished by careful regulation. When the awful prevalence of contagious ophthalmia in these institutions was disclosed by the Ophthalmological Society's investigation some fifteen years ago it seemed hopeless to expect that the evil could be eradicated, yet the present reports show that there is a lower proportion of the disease among the inmates than among those admitted, so that the institutions have actually be-

come safeguards for the population by helping in the eradication of these diseases. With this happy result in mind we can feel sure that the dangers at present existing in schools and bath houses will be eliminated and the contagious eye diseases brought under effectual surveillance and control.

MEDICAL TERMS AND GREEK DERIVATIONS.

LIKE everything else that Prof. Osler is interested in The Book and Journal Club of Baltimore is proving itself a source of practical suggestions for the medical profession throughout the country. The subjects treated before the club are mainly of a character that would scarcely make their discussion before the ordinary medical society quite appropriate, yet the material has a distinct value for medical men and especially for those who feel it their duty to let nothing that concerns medicine, its literature and history, remain outside their sphere of interest.

We have endeavored in the department of *"Byways of Medical Literature"* in certain issues of the MEDICAL NEWS during the past year to show how many things there are on the borderland between history, literature, science, and medicine that every wide-awake physician must be interested in and the announcements of the papers read at The Book and Journal Club have made us feel encouraged in our work.

We published recently Dr. Francis Packard's article on "The Resurrectionists of London and Edinburgh," written for the club, and our attention has recently been called to Dr. Achilles Rose's article, which, besides appearing in the Johns Hopkins Hospital Reports, has had the honor of translation into German for *Deutsche Praxis.* Dr. Rose's contention with regard to the formation of new terms in medicine seems eminently reasonable. It is clear that if all medical terms were formed on Greek models and from Greek roots this fact would greatly facilitate their ready comprehension by men of every language. There is, however, false simulation of Greek derivation that would be laughably absurd only that so many mistakes of the kind have already been made and the terms have secured a firm place in medical and other scientific literature. We cannot afford to laugh much at them, for they are facts and cannot now be treated less than seriously. Such terms as telegram, or telephone, are to the native Greek, according to Dr. Rose, ludicrous combinations of incompatible members. They are not of Greek derivation in any true sense of the word, but are in the doctor's expressive phrase only hellenophantic—seeming Greek.

It seems but right that if medical terms are to be formed supposedly from the Greek they should not be of this phantom character; neither should they be of such hybrid nature as appendicitis or jejunitis or cæcitis. They should be formed according to the genius of the Greek language as living scholars know it. Discoverers in medicine may well pause for a suitable word for their offspring and not baptize it by some incompatible combination of Greek roots that will prove a constant source of irritation to the cultured physicians of another generation.

If such care is not taken terms formed in this period of medical evolution will bear the stamp of a certain superficiality of knowledge that may be considered characteristic of the age. Words are telltale historical documents in such respects and convey information where it might be least expected. Dr. Roswell Park in his address before the medical department of Yale University, at the last commencement, on "Words, Men and Deeds," called attention to the fact that our present anatomical nomenclature reveals the difference between the searching depth of the Greek mind and the superficiality of Latin investigation. Most of the deeply situated organs requiring careful study for their discovery were given names by the Greeks. Good examples are hepatic, ethmoid, sphenoid, aorta. More superficial parts have Latin designations: temporal, frontal, parietal, costal, etc. A future student of medical philology may be enabled to trace a discovery to our era because of the hybrid name under which it is known. Most of us would prefer, however, not to think of our time as notorious for any such unworthy reason.

ECHOES AND NEWS.

NEW YORK.

American Gynecology.—The first number of this new periodical, devoted to gynecology and abdominal surgery, has just appeared. The Editorial Board is to be congratulated on the excellent appearance of this introductory issue.

Wireless Telegraphy in Medicine.—On its recent trip across the Atlantic, a titled passenger of the Kaiser Wilhelm der Grosse was taken ill with appendicitis. Drs. William T. Bull of New York, and Roswell Park of Buffalo, were aboard and treated him. An ambulance was telegraphed for while the steamer was 40 miles at sea and was in readiness at the arrival of the Kaiser.

Abatement of a City Nuisance.—District Attorney Jerome, Health Commissioner Lederle and President Vreeland, of the Interurban Railway Company, held a conference in the office of the former, last week, with

the object of trying to come to some understanding regarding the storage battery fumes emanating from the Thirty-fourth street line. Mr. Vreeland explained that his company was getting ready to change the motive power of that line to the underground trolley system. Bids, he said, had already been asked for, but it would be impossible to make a change for at least eight months. Meanwhile he agreed to take steps to remedy the nuisance. It was said this was satisfactory to both the Health Commissioner and the District Attorney.

Consumptive Hospital Plans.—The commission in charge of the construction and maintenance of the proposed State hospital for consumptives to be located in the Adirondacks, met in Albany, July 30, with State Architect Heins. Howard Townsend, president, and John Seeley Ward, Jr., of New York city and Dr. John H. Pryor, secretary, of Buffalo, were present and approved Mr. Heins' plans for a two-story brick and stone building, to be constructed on the pavilion plan with an administration building in the centre. The hospital is to accommodate a hundred patients and is to be located at Raybrook, Essex county, between Lake Placid and Saranac. It is to be started under the appropriation of $100,000 made by the Legislature, it being the expectation that work can be begun this fall, so as to have the building ready for occupancy next year.

Eye Doctors in the Schools.—At the meeting of the Board of Education last week a letter was read from Dr. Lederle, the Commissioner of the Health Department, saying: "I ask your cooperation in some important work during the next school year. I propose to employ specialists for work not hitherto undertaken in this city. The most important part of the work is to be the examination of the school children for contagious eye diseases. During the last two weeks of the school year just closed I appointed twelve eye specialists to find out the extent of contagious eye diseases among the children. The experts examined 55,000 children in thirty-six schools and no doubt you will be surprised and shocked as I was to learn that no less than 6,670 children or 12 per cent. were afflicted with contagious eye diseases. Of this number 2,328 were suffering from the severest type of trachoma. All these children should be excluded from school."

See Editorial Comment and Report of Academy of Medicine elsewhere in this number.

The Establishment of a Private Psychopathic Hospital.—The need has long been felt for a private Psychopathic Hospital which would provide the special conditions for the observation and treatment of persons suffering from acute or transient nervous conditions, or the insidious initial stages of mental derangement. During the last few years this matter has been the subject of much public discussion. As early as 1897 an appeal for a Psychopathic Hospital was made by the former director of the Pathological Institute, and since then the project has been earnestly advocated by the New York State Board of Charities. The trustees of the New York Infirmary for Women and Children have recently received donations for the establishment of a Psychopathic Hospital with Research Laboratories in Psychopathology and Neuropathology, as a Department of the Infirmary. This hospital has been opened. Beds and private rooms have been endowed for patients under the observation of the Director of the Psychopathological Laboratory, Dr. Boris Sidis, and his assistants, Dr. Henderson B. Deady and Dr. George M. Parker. In addition to these rooms, the hospital offers to physicians the facilities of other private rooms for patients under their personal direction and treatment. Situated, as it is, in a large city, this hospital should prove a great help to the physician who is usually confronted with the alternative of keeping his patients at home, or sending them to a country sanitarium and away from his observation and treatment.

The rates for patients under the charge of their own physician are from $40 to $50 per week. Applications for the reception of patients should be made to Dr. Henderson B. Deady at the hospital, 321 East 15th street. Telephone 2922-18.

Dr. Alexander Lambert, Miss Julia B. de Forest, Philip Bartlett, and Miss A. B. Jennings, are the Committee of the Trustees for the Psychopathic Hospital.

To War on the Mosquito.—Dr. George A. Soper, whose excellent work in municipal sanitation has been widely recognized, and Drs. W. F. Klein and W. N. Berkeley have been commissioned by Health Commissioner Lederle to wage war on the mosquito. The wholesale extermination of the insect has become a regular study in the Summer curriculum of the Board of Health. This year Dr. Lederle will have a splendid opportunity for pursuing the war, because about twenty trained inspectors, who have for weeks been active in the Tenement House Department, were again turned over to him yesterday, and will assist him in his anti-mosquito crusade. There will be three methods employed. Either objectionable pools will be filled up or the water will be drained from them, or oil will be poured on them. The board has already ordered twenty-five barrels of petroleum for this purpose. The petroleum will be sprinkled sparingly upon the surface of the stagnant pools from the edges. Sprinkling cans purposely fashioned for the purpose, and which the Health Department already has, are to be used for doing this. It is Dr. Lederle's opinion that a pool in which the little "wrigglers" which develop into the mosquitos exist, is a public nuisance. Circulars explaining the duty of citizens in this regard are now being printed, and are to be distributed throughout the various boroughs. The Inspectors will also be called together soon to listen to a lecture upon the subject of the mosquito. In the Boroughs of Richmond and Queens the field of operation has already been laid out, and the inspectors have received some instruction upon their duties. At several points on Long Island, notably at Cedarhurst and Flushing, the work of mosquito extermination has already been begun by private enterprise. Commissioner Lederle said last week: "We are getting ready for the crusade. The work is interesting from a scientific standpoint. The bacteriologists who will aid us are men who have made the mosquito and malaria breeding pools a study, notably Dr. Soper, who did good work for Galveston after its flood. Others, too, who will assist are specialists upon the subject."

Obituary.—Dr. Jesse Bradford Losey, a practising physician of Conesus Centre, N. Y., for forty years, is dead. He was seventy-five years old. During the Civil War he served in the Twenty-second New York cavalry and rendered efficient service at the battles of the Wilderness and Malvern Hill. He was with General Sheridan through the Shenandoah Valley campaign.

Dr. John Edward Morgan, a retired physician, whose family owned the site on which Hollis, L. I., was built, died at his home, in that place, Monday, from kidney and liver diseases. He was forty-six years old and a wealthy bachelor.

PHILADELPHIA.

Eisner Memorial Home for Nurses.—Work has been begun on this home for the nurses of the Jewish hospital. It will accommodate 35 nurses and is to be finished by December 1.

Superintendent Geary Resigns.—The expected resignation of Superintendent Geary of the Almshouse

was received July 29. It is said that Temporary Superintendent Smith will not keep the position permanently.

Death of Assistant Medical Inspector.—Dr. J. Aubrey Davis, since 1894 an Assistant Medical Inspector in the Bureau of Health, died July 31, aged 37 years. Dr. Davis graduated from the University of Pennsylvania in 1887.

Dr. Browning Objects to Award.—The attorneys of Dr. Walter C. Browning have filed exceptions to the finding of the court in his suit against the estate of Senator Magee. The exceptions are contained in 23 alleged errors in the finding of the court.

State Medical Examinations.—The report of the State Board of Medical Examiners shows that there were 405 applicants for license at the June meeting. Of these, 43 failed to pass, six withdrew, one was ineligible, and one was expelled for cheating.

Against Adulterated Food.—The predicted fight against the beef trust has been begun in this State by the Dairy and Food Department. Warrants against the Kansas City and other Beef Companies have been sworn out. Examinations of canned meats from many of the large packers have shown them to contain boric and sulphurous acids. Rigid search for such meats will be made in all parts of the State and arrests made without delay.

Washington to Adopt Philadelphia Filter System.—After a tour of inspection of the various filtration systems of the country, in company with a party of United States engineers, it is reported that Colonel A. M. Miller, Government engineer in charge of the Water Department, has adopted the specifications of construction of the system in this city as the standard for the bids on the proposed filtration plant for Washington, D. C. It will be about half the size of the Torresdale plant and will contain 26 filter beds.

State Medical Society.—The fifty-second annual meeting of the Medical Society of the State of Pennsylvania will be held in the Lyric theater, Allentown, September 16, 17, and 18, 1902. Dr. Francis P. Ball of Lock Haven is President and Dr. Cyrus L. Stevens of Athens is Secretary. The address on Medicine will be delivered by Dr. A. O. J. Kelly, of Philadelphia; the address on Surgery by Dr. George D. Nutt, of Williamsport; the address on Obstetrics by Dr. J. M. Baldy, of Philadelphia; the address on Hygiene, by Dr. Edgar M. Green, of Easton; the address on Mental Disorders by Dr. J. Moorhead Murdoch, of Polk; the address on Ophthalmology by Dr. G. H. Halberstadt, of Pottsville. Those desiring hotel accommodations should address Dr. Eugene H. Dickenshied, Allentown.

Volunteer Oculist Rebuffed.—The Times publishes the following: A Philadelphia oculist of National fame was returning from Pittsburg recently and had as a fellow-passenger from Harrisburg a young woman who seemed in great distress with her eyes. Thinking that a cinder or some dirt had been taken in, he stepped across the aisle of the Pullman and, politely informing her he was an eye-doctor, offered his services. She drew up haughtily and told him she could wait until reaching the city, where she should find a specialist "of some repute." Feeling duly crushed, he asked her pardon and resumed his seat. Five minutes after he reached home, a patient was announced, and he walked into his operating room to meet the same young woman, who told him she came to him on the recommendation of friends in Harrisburg.

Should the Coroner be a Physician?—The renomination of Thomas Dugan for Coroner has brought out the old statement that the office of Coroner should be held by a physician. A very competent writer in one of the daily papers, in an historical article on this subject, is disposed to answer the question in the negative. The last medical incumbent of the office, while a reputable and respected member of his profession, is said to have lacked that experience of general contact with men which enables an intelligent layman to dispose of non-essentials and to reach the pith and marrow of public business. His mind moved slowly by a scientific and logical method which often made the processes of his work tedious even when they were thorough. At one time the coronership of Philadelphia passed into the hands of two physicians in succession. Politics interfered with their administrations as they were said to lack in the faculty of management and in the art of keeping party mendicants from interfering with their everyday work. The contrast with later administrations was not favorable to the former. Politicians have not made the office here a burden to the taxpayers as in some other cities, the whole system being so inexpensive, comparatively, that there has been little disposition to amend it or to do away with the Coroner entirely as has been agitated in some places of late. The writer whom we quote, however, sees absolutely no good reason why that superfluous appendage, the Coroner's jury, should not be removed.

CHICAGO.

Appointment of Dr. H. H. Rogers.—Dr. H. H. Rogers, one of the lecturers in the Illinois College of Pharmacy, will assume his new duties as principal of the Northwestern Military Academy in September. He will continue to act as one of the lecturers in the College of Pharmacy.

Hospital Manager Fined.—Residents in the vicinity of 294 Ashland Boulevard won a victory in their fight to force the removal of a hospital at that number, when Justice Underwood fined Dr. Joseph Lee, who is alleged to be the manager of the institution, $50 on a charge of operating a hospital without a license. Witnesses said the screams and groans which emanated from the hospital at all hours of the night had had the effect of driving persons from the neighborhood.

Sanitary Inspection of Mid-summer.—Thanks to the publicity given by the press to the statement of the health department concerning the usefulness and the necessity for midsummer sanitary inspections in the tenement house districts, the Visiting Nurses' Association and the members of the senior class of Harvey Medical College have tendered their services. The Knickerbocker Ice Company has offered to furnish ice gratis to families recommended by the volunteer inspectors on orders countersigned by Miss Harriet Fulmer, Chief of the Association.

Impure Milk in Restaurants.—Health Commissioner Reynolds has started a vigorous campaign against the use of impure milk and cream in the restaurants, hotels and lunch counters throughout the city. As a preliminary step, cases will be started at once in the courts against 36 concerns which were shown by the health board's analytical experts to be using milk mixed with water or tainted with formalin. The present activity of the city officials was caused by the claim of the wholesale and retail milk dealers that all goods handled by them now reached the customer in a pure condition, and that all adulteration took place after the milk left their hands. While not entirely agreeing with the truth of this assertion, Dr. Reynolds thought that it would be only fair to look into the methods of the restaurant and hotel men.

Sewage of Chicago and the Drainage Canal.—The State Board of Health is just about to publish a third report on the sanitary investigations made by the Board of the Illinois river and its tributaries, and also the

Mississippi river. The first report, issued in 1899, gave the results of analyses made prior to the opening of the Chicago Drainage Canal, and the second, published in 1901, brought the results of analyses made down to April of that year. In the investigations in 1899 to 1901 the Illinois river, at its mouth, was found to be in better condition than most of its tributaries. The amount of albuminoid ammonia in the river at its point of entrance into the Mississippi was found to be far less than in the Mississippi at the same place, and the oxygen consumption markedly less. Practically no organic matter remained in the Illinois river to tell of the enormous pollution 320 miles above. In the opinion of the board, this remarkable destruction of organic matter was due to organic oxidation. The results set forth in the reports of 1899 and 1901 are confirmed and strengthened by the investigations conducted in 1901 and 1902, a report of which is about to be published. These investigations, however, were confined to the Illinois river at its mouth, the Mississippi river a short distance above the mouth of the Illinois, and the Missouri river at its junction with the Mississippi. The analyses revealed the significant fact that the Illinois river at its mouth contained less pathogenic and sewage bacteria than the Mississippi and Missouri rivers at the points named.

GENERAL.

Belgian Society of Surgery.—This Society will hold an annual meeting in Brussels Sept. 8, 9 and 10. The deliberations of this session will be devoted exclusively to the questions of appendicitis, treatment of fractures and asepsis and antisepsis of the hand, the area of operations and the suture materials.

A New Sanitarium for New Jersey.—A private Sanitarium has long been needed in New Jersey, and we believe the one just opened at Summit in that state by Dr. Eliot Gorton, formerly and for fourteen years, first assistant physician in the State Hospital at Morris Plains, will be generally appreciated by the profession in this community.

Smallpox Hospital for the Oranges.—Orange, West Orange, and South Orange have combined to build an isolation hospital. John T. Platt has been elected President of the Joint Commission, Abel L. Mooney Secretary, and Dr. J. Minor Maghee Treasurer. Plans will be prepared for the building immediately, and work will be started Sept. 15. The site will probably be on the Orange Mountain.

Statue of Pasteur Unveiled.—A statue of Pasteur, says the Paris correspondent of The Times, was unveiled August 4, at his birthplace, Dôle, Jura. Triumphal arches were erected, and on most of the houses there were garlands of flowers inscribed "To the Benefactor of Mankind." The Minister of Commerce, M. Trouillot, and the Academician Thureau-Dangin delivered fervid orations on Pasteur's discoveries and his noble character.

Health of Prof. Virchow.—According to the N. Y. Times it is reported that Prof. Virchow has suffered another accident and is critically ill. Prof. Rudolph Virchow, whose eightieth birthday was celebrated last October, both in this country and in Germany, was hurt last Jan. 15 by a fall as he was leaving a street car in Berlin. The injury was not of a serious nature in itself, but the great age of the eminent scientist made it dangerous. In the latter part of January Prof. Virchow was very ill, as a result of the fall, but his recovery followed.

Health Farm for Tuberculosis.—The Young Men's Christian Associations of Colorado have united in an effort to establish a "health farm" for convalescent consumptives, to be administered in cooperation with the National Hospital for Consumptives at Denver. An unimproved sixty-acre tract of land sixty miles west of Denver has been purchased. One-third of this tract is above irrigation, and particularly well suited for the location of buildings. The residents will use for sleeping purposes tent cottages, which are deemed the most desirable and healthful for men with incipient lung trouble. It is the plan of the committee to charge each resident a moderate but definite sum for tent cottage, meals, laundry, and other privileges of the settlement.

SPECIAL ARTICLE.

THE MEDICO IN CIBIRIA ("SIBERIA").

OBSERVATIONS OF THE PROFESSION BY A NON-PROFESSIONAL OBSERVER.

BY L. LODIAN,
OF NEW YORK.

INSPECTION work detained the writer in Cibiria for one year, traveling from the Pacific overland to the Urals; then another year followed, traveling from end to end of Russia proper. I was often brought into contact with medical men in Cibiria and Russia, frequently putting up at their log-houses as a choice between camping-out under the rain-soaked tent, or sharing the bugs of a Cibirsk (medico's temporary quarters).

The proper spelling of the word is Cibiria (from Russian Cibipia—their *p* being our *r*), and this has been followed throughout the present article.

I would, at starting out, ask the indulgence of the reader, to bear in mind that I relate only what I saw and was told, and will leave the reader to form his own opinions. And I feel pretty certain the expressed verdict will be, at the end, "an interesting paper"—although there is little to learn from Cibiria professionally. Further, it is believed this is the first article to appear in print on professional life in Russia's Asiatic dominions. A search of the various indices medici for data on Cibiria will be in vain.

The regular medical staff of the Trans-Cibirian railroad, receive (considering the cost of living) poor pay. A bpach—(which is pronounced brach)—or physician, receives but 100 to 120 pybli (pronounced rubli) per month; and his *felchep* (from the German felcher) or aide, gets at most only half that. This "aide" is indeed very much of an aide or assistant in Cibiria. It goes without saying that he—like many other "assistants"—not alone assists, but practically does all the work. If there is a midnight call to a mishap among some of the railroad employés, it is always the felchep who has to turn out. The doktop, or chief, must not be disturbed. A pretty turn-out it is, too, for all concerned—to have to leave your warm bed and snug room at 1 a.m., mount the dpizina (trolly) and painfully face the arctic blasts of a temperature 20 to 35° below zero C., in order to reach a plate-layer's wood-hut between stations seven or eight miles, this is a common experience of the felchep.

The felchep is usually a man who has been unsuccessful in his diploma aspirations, or an exiled medico, or a railway pharmacist who has the office of felchep gratuitously inflicted on him in addition to his ordinary work. His diminutive salary of $20 to $25 monthly is, fortunately, not reduced by rent, or firing, or lighting, which are free. Same, too, with the physician, who is often a man with half the years of the felchep.

THE CIBIRIAN RAILWAY SURGEON.

The railway surgeons along the line, located about every twenty-five decimal leagues apart (1 d. l. equals

6¼ statute miles), are generally uniformed army surgeons who have been drafted from Russia, on increased pay, across Cibiria, and mostly combine the offices of physician and surgeon. But the increased pay is still poor—about 150 pybli (say $80) per month; and you can do more with $40 in America than the equivalent of $80 in Cibiria.

FIELD AND RAILWAY WORK.

Under the questionable paternal system of government prevailing throughout Russiadom, the passing or cursory medical assistance prevailing on all the state railroads is one of the few redeeming features of the "fatherly" slaf administration process. The service is entirely gratuitous to poor and rich alike. There has been during the present years a big hegira of poverty-stricken Russian peasants to Cibiria—a word which, a decade ago, sounded to them like penal servitude. The migration is somewhere near a quarter-million annually. I have often observed their lot—ignorance, improvidence, hospitality, superstition, devotion, are some of their characteristics. Among those crowded shoals of migrants, traveling in plank-seat box-cars, the mortality among the babies will rival that of a British concentrado camp in the Transvaal republics. It is precisely among these emigrants that the medico and felchep in Cibiria find their chief work cut out for them. They are usually prepared for the cases, since it is customary for telegrams to be sent in advance (also a free service) by the station HACHALHIK (chief), at preceding stopping stations. The felchep at the minor stations will go through the train, quickly ascertain the trouble, do what little he can in the limited time the train stops, and advise ahead. This method saves delaying the train.

On arrival at the station advised, the doctor will make his superficial diagnosis, and instruct the felchep as to remedies to be supplied. If there be a hospital among the station buildings, and the case warrant it, the patient will be turned over thereto, if practicable. The hospital attention is also without charge. I use the qualifying expression "if practicable," for there may be many reasons (too numerous to go down here) between physician and patient and parents as to a more or less prolonged stay-over at the hospital. So of course the C'birian medico governs himself according to circumstances.

Some of the Russian words in this paper have their pronunciations in parentheses. This will give a good idea of the difficulty of mastering the language.

CIBIRIAN HOSPITALS.

The Cibirian hospital is, except in a couple of big towns like Ipkytck and KPACHOIAPCK (pronounced Irkutçk and Kracnoiarçk,—the *c* having the sound of our *z*), built of wood—whole tree-lengths quickly planed by hatchets on upper and lower sides only, and mortised into each other. Maybe not a nail will be used in the construction of the walls. The interstices will be filled with a refuse vegetable fiber resembling jute, or very fine or downy hay. It harbors the swarms of bugs with which Cibiria houses abound. I have been through both prison and civil hospitals, and perhaps the reader will be surprised to learn they are not nearly as bad to-day as when described by George Kennan over a dozen years ago. What Kennan wrote was true—too true; in fact, things were really worse, if anything, than Kennan made them out to be. My informant was a hospital medico who had been chief at one of the prison *rocnitali* during a visit made by the *Century* envoy: he had read the surreptitiously-printed Polish edition of Kennan's masterpiece, and found that Kennan had, if anything, understated the truth.

CIBIRIAN PRISONS.

Going through the Cibirian prisons and hospitals, I noticed everything scrupulously clean. I was not a "saw-him-coming" visitor, since I had no pass to visit a single one of any such buildings, but, being a guest for a day or two of the hospital *bpach*, was invited by him to visit the place. If a prison hospital, it was a sad sight to see the patients doubly crippled by disease and by the legcuffs they still wore, unless the physician saw cause for having them removed. All would stand up—if their state permitted—by the side of the bed, as the medico passed. This was more as a customary salute than anything else. Knowing his cases well, he was through with the inspection in five minutes. This was a "let-getting-well-enough-alone" *bpach*, and I did not blame him for thus speeding through his dozen prison patients.

POPULAR MALADIES.

Next we entered an isolated ward; there were four men confined there. Why alone? The old story. Syphilis is so diseasing the slaf population—scarce even a remote village being free from it—that it is becoming a serious state question, and has largely occupied the minds of the faculty at Petersburg. Complete isolation until cured is one of the suggestions now being (as we have just seen) followed out strictly, even in a wooden hospital in the wilds of Cibiria.

There were, for a wonder, no smallpox patients in the one empty ward reserved for that purpose. The ravages of this disease have not been particularly fatal to the hardy Cibirians, except to their faces; almost one-third the people are pitted. Lung troubles are very rare. Even the Russian doctors sent in recent years to Cibiria, expressed to me their surprise in this regard. The climate is so dry and severe, that feeble-chested people from the transural are either soon killed off, if too far gone, or, if having enough vitality to stand the building-up process, are permanently cured.

EMASCULATION OF SYPHILITIC SUBJECTS.

The syphilitic taint which is permeating slaf blood has in recent years been brought before the council of state. What is to be done? A drastic remedy has been proposed, and, although not on the statute-book, is, I believe, as quietly and expeditiously carried out as a modern removal of the vermiform appendix. I say "believe," because in different parts of the Russian union I was so often thus informed, and credibly, that "there must be something in it." I refer to the castration of syphilitic subjects, *nolens volens*. There is no gainsaying the fact that the remedy is a specific one, and, on the subject operated on, it is pretty certain his career as a propagator of venereal diseases is effectively checked.

But the Russian castration idea is an old one. Even in our own America, castration has been proposed for putting a stop to the procreative faculties of professional criminals. And one of the salient recommendations proposed and carried to unanimity at the international convention for remedying the Jew-evil, held at Paris two years ago, was for joint-action by all countries in emasculating the Jew residents.[1] And the proposition actually came from the American delegate.

But, however, efficacious these remedies may be, public opinion is not yet ripe enough for such drastic measures. It may be so twenty years hence.

CIBIRIAN NATUROPATHICS.

The medicos of the "land of dreadful distance" would sometimes speak of the help extended by nature in

[1] Dixieme Convention Internationale pour remédier le juif-mal, Paris, 15-18 May, 1900, report de la convention.

Cibiria in the convalescing of their patients. "They either get well quickly or die quickly—in the latter case, saving us much trouble." Nobody is more likely to appreciate the latter condition in a hopeless case, than the government-salaried *bpach*. I dwelt at length on the remarkable purity and dryness and phenomena of Cibirian climatic conditions, in the now-defunct monthly, *Climate* (St. Louis), a couple of years ago, but, still, I could never conscientiously recommend Cibiria as a health resort, in view of the hard living conditions and lack of civilized comforts.

WHENCE THEY GET THEIR SUPPLIES.

The medical men drafted across Cibiria are mainly diploma people from Petersburg, or from southwest Russia and Polonia, who have taken their degrees at the capital. A few understand our own language, many speak French, but most talk only German and Russian, with the necessary complement of Latin. From what I learned of them, as a non-professional man, I should call them a representative body of men, judged by native standards. Many have studied in the capitals of Europe. In fact, the surgeons rely on the foreigner for their outfits. Surgical apparatus comes largely from Paris firms, also from a few Berlin houses. Evidently, Russian-made instruments of precision are not in favor with the Cibirian practitioner. The physicians and felcheps draw their supplies from the Government pharmacies located along the line, where the physician or felchep (aide) are practically often one person, as pointed out by the writer in "The Drug Calling in Cibiria," appearing in the May issue of last year's *Druggist's Circular*.

THE POLAK MEDICO LEADS AMONG SLAFS.

They are of various nationalties—but all slafs—are the physicians in Cibiria. There is the Russ, the Polak, the Serb, the Bulgar, etc. Of course the Polak "leads them all," both intellectually and in professional qualifications. The administration at Petersburg will sooner give a position of trust to a Polak than to a Russ, provided it be far enough away from his cherished Polonia —for the dream of the Polander for independence is not dead. Don't make any mistake about that! I did—so hasten to enlighten the reader. The Polander is playing a quiet waiting game. Like the Filipino (who will one day see his republic established) the Polak is content to bide his time, and it is due to the Polish mother that the heroic old spirit of Koscziuszko and Pulaski and Poniatowski is kept alive.

WOMEN PROFESSIONALS IN CIBIRIA.

The *nobibalnaia babka* (midwife) is an authorized institution in almost every Cibirian and Russian village; in various towns you will find women aiding in the hospitals and pharmacies—some of them being exiles who are thus earning a pittance of Russia's borrowed money; but I never came across a woman-practitioner in Cibiria; although in Russia, on the railroads, the officially-maintained midwife for the railway employés' homes is a feature in slaf economics. And they have, at times, no "soft snap"—having to respond to calls at any hour of the night. At one lonely house in the forests where the commission halted for the night, seven miles from the station, the *babka* came over the snow at 3 a.m., and had a lively towel-handling time till daylight. Dboinik (twins)!

SOME SANITARY AND ECONOMIC CONDITIONS IN THE HOMES.

Cibirian women, as a rule, keep their homes scrupulously clean. If of the fairly-well-to-do-class, they employ a village help, who sleeps in her clothes in the kitchen. There is never or rarely a thought of giving a domestic a room to herself. The houses are of wood, one story high, averaging three rooms and a kitchen. Every *dom* (home) almost is liberally provided with bedbugs, which are so big (about three times the size of the American commodity) that the cats, which like the odor of bitter almonds and have a habit of chasing and eating and subsisting on bedbugs! The bugs breed in the interstices of the wood-walls.

The families are usually big—too big. Girls predominate, which is one evidence of the patriotism of the Cibirian women. The names are nice-sounding—Lena, Maña, Taña, Teisa, Olga, Anastasia, Neuta, etc.

Babies are in happy evidence in a majority of the homes, and their only cradle is a box hung to an elastic pole suspended from a rafter. This rocks the baby up and down. The practice of getting up at night and walking with the baby is happily unknown.

Washing clothes is performed, as in our country districts, over the tub; but the mangling or ironing in Cibiria is unique. A sheet, for example, is quickly wound up on a round pole the length of a blind roller, laid on the table, and rolled back and forth by hand under a flat short lath of wood. It is amusing to see how well this primitive process takes out the creases.

HYGIENE OF THE PERSON.

Odd-looking but universal is the practice of Cibirian and Russian workingmen to let the shirt hang down on the outside of the trousers, with short coat worn above the shirt. Many Cibirian physicians even make their village calls thus costumed.

One of the minor glories of Russia is the afternoon tea, with the lady of the house presiding over the steaming samovar. Attired in that snow-white light woolen costume, empire style, she looks—if of good figure—the poetry of civilization. Among the poorer classes (it is most undemocratic and anti-republican to say "lower classes" in socialistic-absolutist Russia) a queer custom exists, when breaking the compressed tea so much used in Cibiria, of putting it between the teeth and breaking the hard and compact mass between the incisors, then letting the pieces drop from the mouth to the *chinik* (tea-pot),—in succession serving the infusion to the guests. This may not be "chic," but all the same the foreigner appreciates Cibirian hospitality. Another custom is as follows: If a guest has left any soup in his plate, to pour it back in full view of everybody, into the soup-tureen, whereupon it is sent back into the kitchen to be incorporated into the next meal's soup. Last thing of all at a meal, small glass bowls of tepid water are handed round, for rinsing out the mouth, and there is for half-a-minute the unseemly gurgling of water heard gushing about inside the closed mouth; it is then ejected into the same bowl, at table, in full view of everybody. At first, in my innocence, I thought this water was to drink, yet, marveled why it had been given a few drops of menthol (peppermint), so I gulped it down, then felt my cheeks glowing warm when I saw the real object. But still, I could never bring myself to that—rinsing out the mouth at table. The toilet-table or bedroom is the proper place for that operation.

VIRGO INTACTA.

In central Cibiria I was informed of a peculiar after-marriage custom. The husband carries the blood-stained chemise of his wife to the priest in proof that she was *a virgo intacta*. This, of course, is not absolute proof of a woman's pre-marriage virginity, but it satisfies the Cibirian mind.

"LIVE AND LET LIVE"—AUTOMATIC SEWAGE REMOVAL AND FERTILIZING.

In Cibirian villages nothing is wasted. The privies are open at the rear to the pigs, who keep the place "religiously" cleaned or cleared of contents. The pigs in turn wander over the fields, and fertilize the pastures. One medico on the za-Baikal informed me of a singular case he had recently been called to. A mujik had gone to sleep while at stool, and the pig below, perceiving the pendant bag and testicles, had reached up, instantly took a firm grab, and in a twinkling had torn away and bolted the whole appendage. The castration was complete. Despite the shock, the man soon recovered. Horse-droppings on the highway are nibbled up by the cows; and when a person urinates on the grass, a bovine will hurry up to eat the urine-soaked herbage for the sake of the salty deposit. And than Cibirian ham and milk and butter, you will get none better-tasting on the globe. In India, I remarked the same thing in regard to water-closet removals; and in Japan the rice-paper used as a toilet article, is saved in the privies in a special box, and, when a sackful has accumulated, the unsavory excrement-crinkled mass is sold to the paper mill and again converted into pulp and then again made into those rolls of delicate Japanese rice-paper which are cut up both for toilet paper and (in larger sizes) into the unsatisfactory makeshift table-napkins seen in some Manhattan restaurants. Queer, the uses to which that rice-paper, with which we wipe our lips, has been placed!

WHERE MEN DON'T CARRY THE BABY.

It is considered effeminate in Cibiria for a man to be seen on the streets of a town or village carrying his baby. That is considered strictly a woman's duty. So—being fond of infants myself—when I would ask to be allowed (during a short country walk) to relieve a mother's load somewhat under the warm sun and "carry the baby," I was looked upon as "half-daft." But I did not mind what was thought. To a man with a soul, what more charming and sacred than to be entrusted with a baby-girl?

The student of pediatrics will be interested to know that the rigorous Cibirian climate does not permit of lingering diseases among infants and young children. They either grow up strong or go down fast—into mother-earth.

DOMESTIC LIFE IN CIBIRIA—SOME OBSERVATIONS IN MEDICOS' HOMES.

In her domestic life, the slaf woman has a less happy time of it than the American wife. Her husband—outwardly a "good-enuf" fellow—has a weakness for playing the petty tyrant over his wife; and the man who does that always betrays a limited mental intelligence. I knew one brute, at Ipkytck, central Cibiria, who locked his wife up in the house evenings, as a matter of course, with her baby as her only society, while he went to his club for the night; and, if he didn't turn up for a couple of nights at the conjugal couch, his excuse was "he had slept at the club" (or somewhere else).

Before marriage the Russ is, like the Latin (the French, the Iberian, etc.), the height of attention and gallantry to women, and particularly his fiancée. After marriage, he considers her only good enough to use, and shows more "gallantry" to somebody else's wife or sister.

But there are exceptions, thank the Lord. Homes in which the wife rules, and all such homes I have visited remain to the memory as a happy vision. After prolonged observation (but not actual experience) I have come to the conclusion that between a home in which the husband is both master and mistress and one in which the wife is both mistress and master, the latter state of affairs is distinctly preferable.

SOCIAL PURITY IN CIBIRIA'S REMOTEST VILLAGES.

The men and women are, in the most distant villages of eastern Cibiria, from infancy always in each other's society, consequently social purity is a feature of Cibirian life. The more the sexes are parted—as in España (Spain)—the greater the curiosity and immorality. In some remote villages of Cibiria, men and women use the same big bathroom in common. I have frequently been assigned a couch in the same room with husband and wife and grown-up daughters. Here familiarity breeds —respect. But the introduction of criminals, mining hordes, and poverty-reduced emigrants has in recent years wrought havoc with this rustic simplicity.

A sympathetic type is the slaf woman, be she Polak or Russ. Many the little kindnesses I have received from them during a couple of years of harassing inspection work in their lands, and I still continue to feel grateful therefor.

WHAT THE CIBIRIAN MEDICO'S FURNISHED HOME IS LIKE.

To describe briefly the furniture in the general run of Cibirian homes, there are in the living-room a couple of tables, eight or nine chairs (in view of the usually big families), wall-cabinets for tableware, liberal supply of framed pictures (battle scenes, wolves chasing sledges in winter, etc.), sewing-machine, big corner clock. In the parlor, or best room—for the Cibirian housewife is as mortal as any other woman, and must have her "best комнота" (chamber): divan, with rugs and furs, ornamented vases on the tables, side-cabinets containing table services, the best samovar (every house has a couple of these cheerful tea-producers—or rather they make the water hot for the tea), and, unfortunately, too many of those vertical little tables which appear to be made to be knocked over, especially when loaded with a lighted lamp. Kerosene is the common illuminant. Musical instruments—if any—are naturally placed in this best room. Scarcely a home but what will have its music of some sort—guitar, harmonica, reed or barrel organ, perforated cardboard pianino (or little piano), or maybe an old grand, introduced thirty years ago by the exiles, the ivory keys worn through to the wood, and naturally the whole thing woefully out of tune. Tuners are decidedly an "unknown quantity" in Cibiria.

Finally, the bedroom has the two beds for husband and wife (the couple wisely never pass their sleeping existence on the same couch), cots for the children, toilet table, plain chairs, and the inevitable *ikon* (gilt-framed saint) in one corner of the room. It is remarkable how some of the homes are made beautiful with very little material, and by persons in quite moderate circumstances, with an income of, say, only 50 rubles monthly (about $25). I have in mind particularly, as I write, the beautiful little home of Ceñopa Cbift, at Kokyi, on the trans-Baikal; that of engineer Gendre, at Ob, central Cibiria, and that of Laypa Elarin, at Openbypr—all representative slaf homes on a modest scale.

THE UNIVERSAL BATH IN CIBIRIA.

There is one characteristic of which the Cibiriak (or Cibirian, as the western world terms him) can be justly proud; he always owns his own house. Even in the bigger towns of the remote interior, you will find the same condition of affairs. The poorest mujik, too, will run up a bathhouse in his back-yard, where he can at least once a week take the piping-hot Russian bath, of the sort which have given the Russian bath its well-merited good name.

The houses of the majority of the inhabitants are four-roomed, which includes the kitchen. Here the great stove-oven for which the Russki peasant's house is noted is located. It warms thoroughly the entire house. Sometimes, when I have entered a house, and, seeing nobody, called out "Ctop cdez?" ("Anybody here?"), a head would peep forth from the broad shelf over the stove, just under the ceiling. There the whole family had gone to bed!

WHAT TO WEAR IN CIBIRIA—THE VIEW OF NATIVE PHYSICIANS.

In the American professional press in recent years, I have read a deal about what to wear in winter. It may interest the reader to learn the views—or rather view—of the Cibirian exile medico who has been forty years in the land. There is only one suitable textile for keeping out the Cibirian cold, and that is wool—pure wool. If the advocates of linen were to try to get through a Cibirian winter with linen, they would change their opinion in ten days, and the doubting ones would have no two opinions at the end of a week. It stands to reason that linen, even if full of air-spaces, is a poor non-conductor; silk is as bad; while undyed wool is the best non-conductor of all textiles.

Also, it may not be generally known that white woolen costumes are warmer in winter than dyed ones, but the cold is not felt so oppressively in a black garment in winter as is the heat in summer; so white garments in Cibiria in winter are not in vogue for outdoor wear, although quite a number of women prefer them for indoor use. All medical men will acknowledge, from the hygienic viewpoint, the incontestable superiority of undyed goods over dyed; but the unremitting care that has to be exercised to keep them, not alone clean, but in good color (which latter task is often more difficult than the simple cleansing by washing), will always operate against white or undyed clothing as wear, year in and year out, for both indoor and outdoor use.

WHITE COSTUMES IN CIBIRIA.

It will probably be news to many readers to learn that the short Cibirian summer is so warm that both men and women resort to white costumes for at least three months of the year. You feel the need of the white garment—just as in warm Hindustan. There are a number of too-warm days in Cibiria in June, July and August; yet the nights are always cool, so Cibiria is, in Russia, recommended as an ideal spot for honeymooning couples.

MEDICAL AMENITIES IN CIBIRIA.

It may naturally be asked, in a descriptive article like this, what are the diversions of the medico in Cibiria? They are precious few in the wilds of arctic Asia. If among the mines of the Lena river or of Kamchatka, a couple of thousand miles from the nearest points on the trans-Cibirian railroad, the medico will probably find himself eight hundred to one thousand miles from the nearest theatre—and a fifth-rate one at that. The Russ is a great animal for society; he feels it to be the life of himself. If stationed at the mines with his felchep, while he is supposed to be always at his post, human nature is too strong for him, and he easily finds an excuse for frequenting the nearest village or townlet, usually fifty to eighty miles away. Thus, of course, the felchep has to do all the work, and the medico contents himself with a weekly trip to the mines, preferring a Monday, although if the Monday finds him indisposed, he will tranquilly defer his visit, not to the morrow, but to the following Monday.

In the townlets, the medico spends his leisure hours hobnobbing with the politicas, who have their liberty, provided they do not go beyond the jurisdiction of the governor's territory. As this territory may be as big as Texas, it follows they have considerable latitude. The exiles form a social club and meet in one of their homes; the medicos are always welcome, and instead of discussing the reformation of the Russian constitution, the talk is mostly small banter, much laughter, tea-drinking, cigarette-smoking, fodka-imbibing, card-playing, and the inevitable gambling. They live well on nutritious foods—meats, cereals, and dairy and farm produce, and (near rivers) fish are cheap and abundant. It is well they have an abundance to maintain vitality in so rigorous a climate.

Those medicos who, through no fault of their own (being kept at their mining posts by sheer distance from the nearest village—maybe three hundred miles), remain on duty all the year, devote their off-hours to shooting, fishing and compulsory reading, and commiserating with their felchep or the isolated political prisoners on their mutual hard luck.

MINING MEDICOS.

In Russian mining law, every mine operated—even every prospecting or surveying party detailed off in the search of mines—must be provided with a physician, properly equipped, salaried and housed entirely at the expense of the mining people. There are numerous regulations—too space-occupying to be quoted here—regarding the medical staff and equipment of mining parties. Of course, small affairs, numbering less than half-a-dozen men, are exempt, while mines employing hundreds have increased medical provision.

One mining medico complained to me that salary-day (first of month) with the men was regularly followed by *cifilitik eh* ("syphilis day"), as he expressed it. Harlots frequent the mining camps and prey on the men's earnings; and every month, a few days after exposure, various of the men will line up with the regularity of clockwork outside the fapmacia or anteka (pharmacy) for relief.

THE NABOR-MEDICO.

In the Cibirian towns, the private practitioner who is regarded as a Habob (nabob) among medicos, making 500 pybli per month (equaling $250—a big sum there), does his visiting in a swell-embroidered gown or garb which would make a cardinal smile. He is usually of ample form,—and no wonder, for with every visit the *bpach* is supposed to partake of the good things set before him without question. Imagine eight or nine *zabtpak* (literally, to de-fast) before he goes home to lunch!

TONSILLOTOMY DOES NOT PREVENT TONSILLITIS—SOME CIBIRIAN EXPERIENCES.

Ere closing, I should like to relate a personal experience with tonsillitis in Cibiria. Should the tonsils be removed? Does it prevent tonsillitis? After my own plight, I think the profession ought to hear the brief story. The writer's tonsils were, by physician's orders, guillotined or excised at the Cincinnati Public Hospital, after the subsiding of an acute tonsillitis in November, 1893. Six weeks later, in December, he had to enter the Reading, Pa., hospital with the stumps of tonsils inflamed worse than ever before. Cure came only with the bursting and discharging of the pus. He traveled during 1894 and 1895 in Mexico, Polynesia, Australia, Hindustan, Japan, Korea, without attack; but in eastern Cibiria, July, 1896, the old evil recurred—tonsil stubs inflamed and caused exquisite torture. All remedies failed and relief came only with bursting. Five months later, in the forests of central Cibiria, another

vicious attack occurred, reducing me to distressing weakness. The misery of pain trying to imbibe some milk was worse than the pangs of hunger and weakness. All remedies failed and relief came only by bursting. Two weeks of suppuration followed, the pus bursting through and oozing from the neck; and there I was day after day, sooner than be cooped up in camp all day long, progressing with the railway inspection work through the deep snows and icy blasts, until the thin silk handkerchief designed to absorb the pus was (pus and all) frozen to the sore. No ill-effects followed. It is one proof of the extreme purity of the Cibirian climate.

A year later, among the forests of Poland, another vicious attack occurred. The disease could not have been worse. All remedies failed. Relief came with bursting. Gargling, aconite, washes, poultices, potash lozenges—all failed. The couple of weeks' distressing weakness which followed was almost as bad as the tonsillitis itself.

COLLARS CAUSE TONSILLITIS.

About this time I was advised to abandon collars, my Russian informant stating that the specialist Morell Mackenzie looked upon high collars as a prolific cause of enervating and causing throat trouble; and, since having the courage to discard collars and wear the plain white neckerchief, I have been free from tonsillitis for years. It is true that last winter in Manhattan the old trouble reappeared in all severity, but without the vitality-sapping after-effects; but it is noteworthy that four years had elapsed, under the collarless régime, since the previous attack, compared to the six weeks' or six months' interval-attacks of the collar-wearing epoch. My thanks are due in print to the Russian physician for his advice.

A PECULIAR RESULT OF TONSILLOTOMY.

While tonsillotomy did not prevent tonsillitis, it gave me a peculiar musical faculty—the ability to imitate the violin ventriloquially. So identical is the imitation that the deception has often provoked a family audience to laughter. While staying with Tolstoi, by invitation, at his estate near Tyla, central Russia, I often used to accompany him with the vocal violin as he played the piano.

CIBIRIA COMMERCIALLY CONSIDERED.

To interest those who supply physicians' and surgeons' needs, and in reply to many inquiries addressed me since my return as to how to reach the Cibirian drug and supply trade, I would state the procedure is very simple. Let firms address through the mails their illustrated catalogues and price-lists to representative Cibirian importers and medical men,—always stipulating, however, for cash transactions. The addresses can be obtained from various foreign directories. Your ordinary catalogues will be understood. No need to go to any expense printing special foreign-language catalogues.

SOCIETY PROCEEDINGS.

THE NEW YORK ACADEMY OF MEDICINE.

Regular Monthly Meeting, Held Thursday, June 5, 1902.

The President of the Ophthalmic Section of the Academy, Dr. Weeks, in the Chair.

THE scientific business of the evening consisted of a symposium on the contagious eye diseases in New York City and the necessity for prophylaxis, especially as regards school children.

Contagious Eye Diseases in New York.—Dr. Richard H. Derby said that the best report made on contagious diseases of the eye in the charitable institutions of New York City was that made in 1886 by the special committee appointed for the purpose by the New York Ophthalmological Society. A complete report of the four contagious diseases of the eye was made and a startling state of affairs was found to exist. Fifty-one charitable institutions in New York City at that time contained 12,000 inmates. Of these over 3,000 suffered from contagious ophthalmia in some form. A report containing these statistics was presented to the legislature and a law was drawn up to prevent the further spread of the diseases and to introduce measures for the diminution of that already existing. The main features of that law were the prohibition of over-crowding and the requiring of a monthly report to be made to the Board of Health of the number of cases of contagious eye disease to be found in any institution.

Condition after Fifteen Years.—After fifteen years a comparison of the conditions that obtain with regard to contagious eye diseases is very encouraging. Most of the institutions are so arranged and regulated that there is very little chance of contagion within their walls. About 20 per cent. of the cases admitted to some institutions have contagious ophthalmia on admission, but this is soon reduced by segregation and by the fact that no bath tubs or basins are provided for common use, that patients are allowed to wash only by the jet and shower methods and that every inmate is required to have his own towel.

Dangers in New York Schools.—Dr. Derby has recently made a series of examinations in public schools in New York. Of 1,045 pupils examined in one school, 201 pupils were found to be suffering from contagious ophthalmia of one kind or another. Sixty-six of the cases were of so severe type as to call for operative procedures before a cure could be reasonably expected. In another school 700 pupils were examined and over 15 per cent. of them were found to be suffering from contagious ophthalmia. Sixty per cent. of these cases were of severe type. The statistics show how dangerous for the future eye-sight of pupils is the present condition of the schools in certain parts of New York.

Prophylactic Measures Suggested.—Dr. Derby said that the present alarming condition of affairs calls for prompt action in order to avoid severe evils. Systematic inspections of schools must be made at once by competent physicians in order to decide as to the presence of ophthalmia, and the Board of Health should demand the institution of precautions to prevent further danger of contagion. Under the present circumstances the presence of a pupil in school, even though there may be some slight symptoms of eye trouble, may be tolerated by the teacher at a time when there is distinct danger of contagion. It is on the teacher and the chance superficial inspection thus given that the report of cases to the school physician depends. External examination of the eyes from a distance, as is well known, is not sufficient to decide as to the presence of contagious ophthalmia. The only thing that gives any assurance of proper diagnosis is the direct eversion of the lid. Unfortunately there is no hospital to which such cases can be referred and when sent from school they may well prove foci of infection at their homes in tenement house districts. One of the most encouraging aspects of the present situation in regard to communicable eye diseases is the reduction in the number of blind under the care of the city. The number of blind in our institutions has been actually reduced by 47 during the last fourteen years, though there has been a very large increase in the number of inhabitants during the same period. City figures are much better in this respect than the statistics obtained from the country. While only one in 2,500 of the city population of New

York State is blind, the rural counties furnish about one in 650 of the population. The reason for this is that eye diseases of many kinds are neglected in the country, and especially in children, with a consequent loss of sight. In the city our dispensaries enable us to cure many of these ailments, or at least prevent total blindness.

Declaration of Health Commissioner.—Dr. Lederle in a letter to the Academy regretted his absence from so important a discussion, but stated that he knew of the investigations that had been made by Dr. Derby and considered that the statistics demanded immediate action on the part of the Board of Health. The New York City Board of Health will do everything in its power to prevent the further spread of contagious ophthalmia and Dr. Lederle suggests the placing of these diseases among the contagious diseases legally required to be reported. He also says that a careful census of the public schools will be made before the close of the present term, so that the Board of Health may be ready with its plans for the suppression of the disease during the next session of school. The situation as outlined is one that calls for action at once and demands also that no effort shall be spared to meet what is evidently a serious and urgent danger.

Forms of Contagious Ophthalmia.—Dr. Carl Koller read a paper in which he discussed the modern methods employed in the prevention and treatment of trachoma and other forms of contagious ophthalmia. Dr. Koller considers that the most important contagious eye-diseases are gonorrheal ophthalmia of the adult, gonorrheal ophthalmia of the new born, diphtheritic conjunctivitis and trachoma. Of these the acute diseases are perhaps the most serious because they are likely to cause blindness before the disease has run a long course. Chronic contagious ophthalmia, however, is not without its dangers, runs often an extremely insidious course, is very obstinate and intractable, remaining for years sometimes capable of disseminating the disease and is consequently to be greatly feared.

Gonorrheal Ophthalmia of the Adult.—In this disease the stage of incubation may last from three hours to three days. Where there is suspicion of gonorrheal infection of the conjunctival sac immediate instillation of a two-per-cent. nitrate of silver solution will prevent the development of the inflammation. This remedy is useless, however, and may be harmful if symptoms have already begun to show themselves. Once the diagnosis, gonorrheal ophthalmia, is made the patient should be strictly isolated and the nurses and doctors should wear protecting spectacles. If but one eye is infected, the other should be protected by a bandage of this rubber adhesive plaster which should form the outer layer. A watchglass, or mica plate, may be used to enable the patient to see. If the symptoms are mild cold may be applied to the affected eye in the form of pads of cotton saturated with boric acid cooled on a cake of ice. At intervals these should be stopped to prevent paralysis of the blood vessels.

Necessity for Cleanliness.—The eye should be kept thoroughly cleansed of its discharges. To Kalt, of Paris, we owe the merit of having introduced lavages, i. e., the irrigations of the conjunctival sac with large quantities of a 1-5000 solution of permanganate of potassium; instead of this a solution of 1-2000 formalin, or of bichloride of mercury 1:5-10,000 can be used. The solution used should be first warmed and the pressure should not be greater than that obtained from a height between one and one and a half feet, just sufficient to dislodge and wash away all particles of discharge lodged in the folds of the conjunctiva. These irrigations should be employed every two hours day and night. Infected dressings should be thrown into a vessel filled with 5 per cent. carbolic acid solution, or 1-1000 sublimate solution, or plain water. The contagious discharge loses its power of infecting if diluted with water in the proportion of 1-100. If cold applications are not well borne they should be discontinued and hot applications made; these are especially useful where there is hard infiltration of the lids with tension. These hot applications should be employed for one-half to one hour at a time, with intervals of one and a half to two hours. If the swelling and chemosis become excessive, the outer canthus may be incised. This always affords great relief by lessening the tension and by bleeding. While the lids are hard, especially when there are grey patches of exudation on the inside of the lids, cauterization with nitrate of silver is not advisable and may even be harmful, as it gives rise to a recurrence of the infiltration. It should not be used before the stage of pyorrhea, in which the lids are soft, the conjunctiva velvety and the discharge creamy and very abundant. Then the lids should be everted and carefully brushed with a 2-per-cent. nitrate of silver solution, once or twice a day, but not before the eschar of the previous application has been thrown off. Nitrate of silver is the sovereign remedy in gonorrheic ophthalmia. Protargol and allied organic silver compounds raised great hopes when introduced but they do not coagulate and the coagulating power is the chief factor of its remedial efficiency. Nitrate of silver not only has a strong bactericidal power but it necrotizes the superficial layers of the epithelium in which the germs are lodged. The copious irrigations should be continued day and night. The stage of pyorrhea lasts from one to two weeks. Within four to six weeks the eye returns slowly to its normal condition, although for a long time there remains some chronic inflammation and thickening of the conjunctiva over the lids and folds. A dreaded complication of gonorrheal conjunctivitis is ulceration and necrosis of the cornea with its consequences. When it occurs in the first stage it is of sinister import. During the stage of pyorrhea it is not quite so dangerous. Ulcers of the cornea with their sequelæ, as perforation and prolapse of the iris, should be treated according to general principles. Bandaging of the eye should never be permitted because of blocking up discharges. Prolapse of the iris should not be cut off as long as there is danger of infection for it has been known to be followed by panophthalmitis.

Gonorrheic Ophthalmia of the New-born.—Irrigations of the vagina with antiseptic solutions before confinement promised a great deal but have not much effect in preventing infection of the new-born. Credé's method, introduced in 1879 in his obstetric clinic, reduced his cases from 10.8 per cent. to 0.1-2 per cent. and was a great triumph in preventive medicine. If generally used ophthalmia of the new-born would be entirely abolished. Ophthalmia of the new-born shows itself, with similar symptoms as in the adult, usually on the third day, sometimes up to the fifth day; graver cases may appear on the first day. It is generally conceded that if the child comes under treatment with the cornea intact the eyes can be saved with certainty. An exception are cases with malnutrition and failing health. At once nitrate of silver in 2-per-cent. solution should be applied. The lids should be well everted so that the fold of the fornix becomes movable when they should be brushed with the solution until they become white. This should be done daily. Every half hour the lids should be separated and the discharge washed away with a cotton swab saturated with boric acid. If it is deemed necessary to apply cold, ice should not be used locally, but simply cold cotton pads should be applied.

Kalt irrigates the eyes two or three times a day with a 1-5000 permanganate solution, using about one quart each time, with very good results. Treatment with nitrate of silver and simple rinsing away of the discharge insures good results and this is better in the hands of the lay people than the irrigator.

Diphtheritic Conjunctivitis.—This affection is rare in this country but more common in Northern Germany. It is divided into two forms, the lighter croupous and the severe diphtheritic, the difference being clinical rather than etiological. Both may be caused by the Klebs-Loeffler bacillus but also by the streptococcus, gonococcus and other germs. Children between the ages of two and eight years are usually affected, and frequently they will be found to be suffering from diphtheritic throat and nose affections. This is one of the severest forms of ophthalmia and the swelling and hardness of the lids reaches the highest degree and, in severe cases, the cornea is mostly lost without hope. As a rule but one eye is first affected. If the case is severe the antitoxin should be used without waiting for cultures. Strict isolation of the patient should be enforced. Hot applications should be made to promote circulation and resolution of the exudate. Remove the discharge as often as it accumulates. After five days the infiltration lessens, the lids become soft, and then the nitrate of silver should be employed very cautiously, using a 1-per-cent. solution; this should be stopped if infiltration or membranes appear. Vaseline may be introduced into the conjunctival sac to prevent synblepharon in cases where the exudate has been thrown off leaving raw surfaces. Corneal ulcers should be treated on general principles. Prolapse of the iris should not be cut off as long as the danger of infecting the wound exists, as these wounds become infiltrated.

Prophylaxis and Treatment of Trachoma.—Prophylaxis can do a great deal toward preventing the spread of this trouble and every physician should enlighten his patients as to its contagious nature, and should explain to them its gravity and instruct them how to prevent infection. No other person should share the bed, towel or washing utensils with an individual suffering from trachoma. Surgical measures are to be preferred but nitrate of silver and sulphate of copper should be trusted, the former for cases with moderate inflammation and with discharge, the latter for the cases of chronic infiltration. Cases of acute trachoma should be treated with cold applications and irrigations; cauterization with nitrate of silver, as a rule, is not advisable, but scarification brings relief. For the treatment of trachoma surgical methods prevail at present. Expression with roller or other forceps is now in almost universal use, and is well fitted for fresh cases with plenty of follicles and a conjunctiva which is not atrophic. Expression should be done under general anesthesia. After it is finished a ½-per-cent. solution of nitrate of silver which is applied to every part of the conjunctiva. The subsequent edematous swelling may be prevented by applying a bandage, keeping it on over night. Since the expression does not remove the small follicles imbedded in the conjunctiva treatment should be continued for some time after the operation until the conjunctiva is entirely smooth. A 2-per-cent. solution of sulphate of copper in glycerin pure or diluted with water and used for four or six weeks will perfect the entire removal of follicles and papules. In cases where atrophy and cicatrization of the conjunctiva exist with simultaneous presence of follicles one may express the follicles between the nails of the two thumbs, which is less injurious than the forceps and a much more efficient procedure than waiting for the follicles to be absorbed.

Treatment of Pannus.—The presence of pannus is no contra-indication to expression, nor does the pannus require special treatment. Where pannus exists and no follicles in the conjunctiva are present, which never happens in a fresh case but frequently in old cases after many relapses, cutting of the blood vessels at the edge of the cornea with a sharp knife will cause the pannus quickly to disappear. In old cases of acute inflammation, whether the conjunctiva is hypertrophic or atrophic, liberal scarification of the conjunctiva will be found useful. If for all cases of trachoma a universal remedy ought to be selected, which is certainly impossible, the nearest approach to it would be a solution of copper sulphate in glycerin used as eye-drops two or three times a day.

New York Laws as to Contagious Ophthalmia.—Dr. Frank Van Fleet reviewed the laws of the State of New York relating to contagious ophthalmia, the results of their enactment and the desirability of further legislation. Tacitus said that laws are multiplied when the state is bad. With regard to contagious ophthalmia one might think according to this principle that the State of New York was in a condition of marvellously good health. There are but two laws. The first was passed in 1886 as the result of the investigation by Drs. Roosa, Grüning, Noyes, Derby and others. The second was for the prevention of ophthalmia neonatorum and required midwives to report any redness of the eyes of children under their care within six hours after its occurrence. This latter law has been especially effective and has proved very beneficial in preventing blindness. At the present time it is well for physicians to know that the Society for the Prevention of Cruelty to Children will prosecute any violation of this law that is brought to their notice. At the present time contagious ophthalmia is said to exist only to the extent of forty cases for every 100,000 of population. The percentage was formerly higher than this. The presence of the disease is mainly due to the foreign elements in the population. The contagiousness of the disease makes it extremely desirable that there should be more asylums in which it could be treated properly. The quarantine authorities of New York City have begun to refuse admission to cases of trachoma and it seems very desirable that this mode of limiting the disease should be continued. With regard to New York City there does not seem to be any further need of legislation in the matter. Throughout the state it would perhaps be well that the various health departments should be given power to institute prophylactic measures against the spread of the disease, especially in the schools. There is no doubt that if proper representations were made the necessary outlay for inspection of the schools could be obtained. In Dr. Van Fleet's opinion there are many purulent eye conditions which develop as the result of promiscuous bathing in city bath houses. These cases are not serious as a rule, however, and require only slight attention for their cure. The Board of Health can certainly make regulations against the dangers that may be encountered in these bath houses and there seems no need of additional laws. It has been suggested that the use of Credé's prophylactic against the development of ophthalmia neonatorum should be made compulsory by law. There are many specialists in eye diseases, however, who are not agreed as to the usefulness and effectiveness of Credé's method. Consequently it would be inadvisable and surely futile to suggest to the legislature the enactment of such a law.

Need of a United Profession.—In New Jersey there is complaint of the ineffectiveness of the laws already in existence. It has been suggested that the

Boards of Health should put contagious ophthalmia on the list of contagious diseases. What is needed, however, more than new regulations, is the combination of medical interests in a united profession that will secure the enforcement of regulations at present existing. Here in New York medical disunion has lessened the force the profession would have in many ways and has prevented the carrying out of laws that exist to such an extent as apparently to demonstrate that further legal measures are needed, though they are not.

Contagious Ophthalmia in the Public Schools.—In discussing the papers Dr. Grüning said that the public schools are certainly in a very unfavorable condition as regards contagious ophthalmia. A beginning has been made, however, and already some children are excluded because of the presence of contagious eye disease. It must not be forgotten that the patient may be cured and yet reacquire the disease. The Board of Health should have the power not only to inspect the schools, but to go to the houses whence children come and so secure the stamping out of the disease. Trachoma is not endemic in this country, but is brought here from Russia, Italy and Ireland. Now that attention has been called to it there is no doubt that the Board of Health will proceed to enforce the measures necessary for its limitation. Dr. Pooley said that Dr. Derby's report shows at once the value of inspection and its necessity. Unfortunately discredit is sometimes brought upon school physicians by the occurrence of mistakes of diagnosis. Dr. Pooley has recently had some cases referred to him, in which children were dismissed from school for hyperemia of the conjunctiva due to nothing more serious than refractive errors. School inspectors must be competent if they are to exercise the function of dismissing pupils for presumedly contagious disease. Dr. Pooley is convinced that the bath houses increase the number of purulent eye diseases every summer. Shortly after the opening of the free baths, the number of purulent eye diseases under treatment at various dispensaries begins to increase. The inspection of public baths then is extremely necessary and the Board of Health should give it its attention without delay. Dr. Pooley has seen some very severe cases of purulent conjunctivitis that were to his mind undoubtedly acquired in the public bath. In some cases even gonorrheal ophthalmia has been thus acquired. Dr. Pooley considers it cruel to instil nitrate of silver into the new-born baby's eyes. The infants are not infected during parturition when the eyes are firmly closed, but after birth. The child's first instinctive movement is to dig its fists into its eyes. First of all then the hands and bodies of new-born children must be thoroughly washed. This will prove a much better form of prophylaxis than the overpraised Credé method.

Dangers of Public Baths.—Dr. Lambert said that three years ago he called the attention of the Board of Health to the dangers there were of the communication of eye diseases in the public baths. The notion was ridiculed, however, and it was said that the baths were rigidly inspected and that no such contagion could possibly take place. There is no doubt now that many contagious eye diseases have their source in the baths. It is well that the matter has been so publicly called to the attention of the Board of Health, for now it will be thoroughly sifted.

Dr. Jackson said that contagious eye diseases are usually obstinate to treatment and require the segregation of patients for a long time. It seems inadvisable to deprive these children of the privilege of attending school for so long a time. He suggests, therefore, the establishing of separate classes for such children in which they can be taught without danger to others and so avoid possible contagion as well as loss of valuable time in their education.

Dr. Derby in closing the discussion said that as soon as the census of the school inspectors is complete, the extent of the danger will be evident and then it will be comparatively easy to decide what to do. As in the matter of the charitable institutions knowledge of the facts in the case will surely lead to the necessary reform.

MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

Stated Meeting, Held June 9, 1902.

The President, Andrew H. Smith, M.D., in the Chair.

Therapeutic Value of the Internal Use of Carbolic Acid.—Dr. S. Henry Dessau read a short paper on this subject, which was presented in behalf of the Committee on Collective Investigation as a basis for further clinical study. It was perfectly natural, he said, that a feeling of incredulity and hesitation should exist in regard to the virtues of a remedy whose reputation is so closely associated with a history of criminal poisoning, to say nothing of early prejudices founded upon false interpretations of its physiological manifestations. His experience with the internal use of carbolic acid began in 1894. His reason for employing it was that it is an internal antiseptic. As preeminently the type of germicides, being evolved by Nature in the physiological processes of animal digestion, he believed that it should be accepted as a specific remedy against the disease action of a certain class or variety of germs. Clinical results seem from his own observations to bear out this idea in a most satisfactory and gratifying manner. His experience with its therapeutic effects has been chiefly in the treatment of catarrhal complaints involving the respiratory tract, and particularly in influenza among infants and children. His results from the use of carbolic acid have been better and quicker than from any other treatment. They have been especially satisfactory in those cases in which it has been almost impossible to keep the little patients in bed. The method of administration preferred is in the form of solutions of the strength of 1, 2, 3 and 5 per cent. of chemically pure carbolic acid. An infant under one year old receives a teaspoonful of the 1-per-cent. solution, while a child of five years may get the same dose of a 5-per-cent. solution, every two hours. Adults may take a tablespoonful of the 5-per-cent. solution. A small amount of glycerin aids in preparing a more complete solution, and cinnamon water is useful as an excipient to assist in disguising the pungency of the acid.

The author believes that carbolic acid is best indicated in those affections in which the disease-germ is of a weak nature and manifests its pathological action principally upon the mucous membranes. He also believes that its field of usefulness will eventually prove broader than it is at present, and that such diseases as erysipelas, scarlatina, and even typhoid fever and pneumonia will prove amenable to its therapeutic effects. He thought there was no valid reason why carbolic acid should not show as good results in pneumonia as creosote, and the advantage of the acid over the latter pharmaceutically as an internal remedy was that for children it makes a better solution and has a less disagreeable odor. It has been found by him and others perfectly harmless and free from secondary effects when administered in the doses mentioned. The smoky color of the urine is now known to depend upon the elimination of the acid in a changed form, designated as the glycuronate of

hydroquinone and pyrocatechin. The presence of albumin in the urine may or may not be due to an irritation of the kidneys by this substance, but it is a fact that no interference with the renal functions has ever been observed by him from the remedy in an experience now covering some four thousand cases. The only idiosyncracy observed against its use has been that of vomiting.

Time-Saving and Labor-Saving Devices in the Office Work of Surgeon and Gynecologist.—A paper with this title was read by Dr. Robert L. Dickinson. It included the planning of offices and waiting-rooms, electrical outfits, sterilizers, card-histories, and other details. Organization of work by unloading on partners or assistants, he said, found less play in the medical profession than in other livelihoods calling for equal brain power. The physician was able to delegate little, and there was, therefore, all the more need of system and intelligent planning in whatever matters these might expedite and simplify. Expedition in office work may be effected in several ways, such as (1) by well-planned quarters; (2) by completeness of outfit; (3) by appointments and selection among waiting patients; (4) by systematic history-taking; and (5) by proper assistance.

Planning of Offices.—Then general principles bearing on the planning of offices were stated as follows: (1) The offices should be as independent as possible of residential parts of the house. (2) The waiting-room should be attractive, cheerful, light, with sufficient cubic air-space and ventilation, and supplied with comfortable seats, books, pictures, etc. (3) The different offices should be accessible without passage through each other (and without necessarily passing through the waiting-room), so that entrance or exit is possible for each independently. (4) The desk office should be separate from the examining-room. (5) For the busy man two smaller waiting-rooms are better than one large one; two smaller separate examining-rooms better than one large one. (6) The offices should be located in the natural order of progress of the patient, namely: hall, waiting-room, desk office, dressing-room with toilet, examining-room, recovering-room or dressing-room, hall. (7) Ten feet square is a minimum, but sufficient, floor-space to accommodate a single office (as distinguished from waiting-room or dressing-room). (8) The toilet, as well as the telephone closet, should be accessible from both waiting-room and offices. (9) Walls and doors should be measurably sound-proof. (10) Doors should be so hung that when partly open they screen the occupants of the room, and not primarily for appearance or convenience in entering. (11) Provision should be made for the elimination of odors of drugs, gas, steam, etc. (12) Objects calculated to trouble or alarm patients should be screened or under cover.

In these day of electricity interior rooms have become available by the use of a method of illumination that does not vitiate the air, aided by light wall-covering, by the headlight, which is often better than window light, and by the use of rotary fan. Three plans were considered. In the first there were simply (1) a waiting-room (parlor or wide hall) and (2) office (desk office, examining-room, and sterilizing-room in one). An intermediate plan called for (1) hall, (2) waiting-room, (3) office, (4) inner office (including sterilizing- and instrument-room and laboratory, (5) toilet. A complete plan included (1) main entrance hallway, (2) main waiting-room, (3) small special waiting-room, (4) desk office, (5) inner office, (6) inner office, (7) recovering-room or dressing-room, (8) sterilizing- and supply-room and laboratory, (9) toilet, (10) telephone closet—all with independent access to (11) private hallway and (12) separate entrance.

Electric Lights.—Dr. Dickinson gave minute details for the equipment of the various rooms. He then went on to say that for the gynecologist, as well as for the man who deals with the larynx or the ear-drum, artificial light is better than daylight. With the electric headlight the band should rest firmly without disarranging the hair, and have a light cable of sufficient length to permit the wearer to stand up or move to his washstand. Some lights have a focusing device, which is excellent for vaginal and rectal work. For examination of the female bladder or through a tiny opening in the hymen the head-mirror is mostly used. He has abandoned his complicated and expensive cystoscope, except in special cases, for the simple Kelly tube. The handling of the mirror is facilitated by instituting a band of flexible metal for the ribbon. To place a light for the head-mirror over against the operator the best device is a light arm (such as is used by dentists) swinging from the wall, so jointed that it stays in any desired position. The new electric outfits are exceedingly convenient. From one board connected with the street current galvanic and faradic currents are taken, and the headlight and cautery, as well as the electric drill, can be run.

Assistants, Card-Histories, etc.—To save time there should be one or more duplicate sets of those instruments which a surgeon or specialist is needing constantly to use and to sterilize. The sterilizer, with its steam, is best kept out of the offices. Wherever it is, it should have its hood and a pipe out through the wall or window, to carry off gas and steam and heat. By placing special work on special days many a young man can well afford assistance. In some cases a discreet housemaid acts as office nurse. At the next step the accountant becomes accountant and stenographer, secretary and nurse in one. For office work a conscientious woman who understands shorthand can be easily taught surgical cleanliness and the keeping of accounts, because the round of duties is a narrow one, the possibilities of error few, and the supervision constant. The card index or card catalogue system is the only portable, elastic, simple, orderly and self-indexing way of keeping records. It consists of using one or more cards for each case, the cards being ranged under an alphabetical index and stacked on edge in a drawer or box, and folded down the middle for carrying in the pocket. The system also includes ledger cards. Standard sizes were strongly urged for those who desire to adopt a card system for histories, accounts or addresses. For such all the necessary fittings are provided and ready, whereby economy with speed and certainty in filling orders is secured. He had had nine years' comfort with this method in office and hospital. All businesses are taking the card system up.

Serious Vomiting of Pregnancy.—Dr. R. E. Van Gieson read a paper with this title. A careful analysis of the mass of apparently contradictory opinions reduces the many alleged causes of the vomiting into three principal groups: (1) The reflexes produced by impulses from the organs of generation conveyed to the vomiting center. (2) A combination of causes, affecting the vomiting center directly and indirectly and reflexly. Thus, one may have a direct cause by the circulation of toxins and at the same time peripheral sources of irritation may also act. (3) The psychopathic factors which include hysteria. The writer reviewed Barnes' theory which refers the trouble to stretching of the muscular fibers of the uterus; and Graily Hewitt's, that it is due to uterine flexions. Hewitt contended that the occasional success of Copeman's method of dilatation of the cervix was not due to the dilatation *per se*, but to the fact that the pro-

cedure corrects in a large degree any existing flexions. Bennett held that erosions of the cervix were the chief cause, and Keiffer that the suppression of menstruation might cause an accumulation in the blood of harmful waste products (toxins), while Kattenbach considered hysteria a nearly universal cause.

Types of the Disorder.—By means of reports of three cases occurring in his own practice, Dr. Van Gieson gave a clinical picture of three types which, he said, most frequently demand attention, namely, (1) the exaggerated, (2) the severe, (3) the fatal. In the fatal case the induction of abortion had no effect in arresting or diminishing the vomiting, and the patient died from starvation, anemia and exhaustion. So far as drugs were concerned, he had had more success with chloral and cocaine than with any others. In treatment, he said, due weight must be given to the various causes to which the condition has been attributed, remembering that one may have a combination of them all, or but a single one. Displacements, flexions, obliquity of the uterus, inflammatory thickening, etc., must be looked for and rectified or removed. The control of vomiting must be insisted upon as possible by the will power of the patient, and suggestion, hypnotic or simple, may be an important element in hysterical cases. In extreme cases saline injections serve the threefold purpose of increasing vascular tension, eliminating toxins, and supplying the absent chlorides. Subcutaneous injection is decidedly to be preferred to the intravenous.

Induction of Abortion.—The nearly universal opinion is that abortion should be induced after other remedies fail. While personally he had met with disappointment in this matter, he was not prepared to say that he would not again induce delivery, especially if the urine showed any considerable percentage of albumin or casts; but he certainly would not temporize with remedies until the last stage of exhaustion was reached. In Cohnstien's 200 cases only 40 per cent. ceased vomiting after abortion. Bacon took the very positive position that the induction of abortion is *never* indicated, holding that at a stage when it is safe and efficient it is not necessary, while in extreme cases it adds greatly to the danger, rarely stops the vomiting, and can be replaced by the artificial serum. Personally, Dr. Van Gieson said he had as yet had no experience with the subcutaneous injection of normal salt solution, but it seemed to him to meet certain indications for treatment in which our methods have hitherto been inadequate.

Propriety of Inducing Abortion.—Dr. Edward A. Ayers said that, as this affection may be dependent upon a variety of causes, it is our duty to make a careful investigation in order to find out whether there are not abnormal local or general conditions to which the trouble is attributable. In very severe cases, in which all other remedies had failed, he thought it advisable not only that abortion should be induced, but also that it should not be postponed until too late. He could not, therefore, agree with the opinion of Dr. Bacon. As a rule, abortion put an end to the trouble. In these cases it was requisite that the operation should be performed as rapidly as possible, and it was his practice to administer an anesthetic, forcibly dilate the cervix, and then curette out the contents of the uterus. He thought highly of the use of saline injections.

Dr. Robert L. Dickinson said that in hospital practice obstetricians were accustomed to meet with a considerable number of neglected cases in which the life or health of the patient was in danger. In the hands of intelligent practitioners, however, cases of this kind he thought were inexcusable. Notwithstanding the opinions of Bacon, there was no question in his mind that the most important measure of relief is abortion, and he agreed with Dr. Ayers that when other forms of treatment have failed nothing less than this will answer.

Dr. J. Milton Mabbott said that he should hesitate to talk of abortion to his patients, as he believed that this had a very bad effect. In a large experience both at the Nursery and Child's Hospital and the New York Infant Asylum he had never met with a fatal case. He was not so much afraid of the consequences of serious vomiting as a great many physicians seemed to be, and he could not therefore agree with those who advocated an early resort to abortion. He had to confess that while he was quite willing to induce abortion on account of Bright's disease, he was much less inclined to do so for this cause.

Abortion Almost a Certain Remedy.—Dr. Samuel M. Brickner said that, while the paper was a most admirable one, he could not agree with all the statements in it. He believed that the induction of abortion almost invariably puts a stop to the vomiting. There was one point of interest in this connection. Inasmuch as abortion was successful in arresting the vomiting, this seemed to do away with the theory that the condition is dependent on a toxemia. Still, at the present time we could only confess our ignorance in regard to its etiology. He mentioned one case of serious vomiting in which the patient was troubled with gall-stones, and said that after the cholelithiasis had been corrected the vomiting ceased. The fact seemed to be that there was as a rule no one single factor in the causation. There was one method of treatment not thus far alluded to which had proved of very considerable value, and that was Hegar's plan of continuous saline irrigation of the rectum. He himself knew of an instance in which this procedure saved the patient from the induction of abortion. Drugs, he thought, were of no great value.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON MEDICINE.

Stated Meeting, Held May 20, 1902.

The President, James R. Crooks, M.D., in the Chair.

THE scientific business of the evening consisted of a symposium on the watering-places, health-resorts and the mineral waters of the United States.

The first paper of the evening was read by Dr. Guy Hinsdale of Philadelphia on the health resorts of Maine.

Maine Mountain and Coast.—The State of Maine possesses two very distinct kinds of territory as regards therapeutic effect upon invalids—the mountains and lakes of the interior and the long Atlantic Coast line. Of the mountains, Mount Katahdin is the highest, is covered by fir trees, and has a fine, dry, sandy soil. It is the coast of Maine, however, that is most important. The indentation of the coast line makes the sea margin much more extensive than it would ordinarily be. It is calculated that if the sea coast were stretched out in a straight line it would cover a distance of three thousand miles. The climate is cool and stimulating and has a daily range of temperature of from 15 to 17°. Along the coast the breezes from the sea blow in a southerly and southwesterly direction and are extremely pleasant. The sea breeze blows landward from about ten in the morning until five in the afternoon. This causes a notable depression of temperature for some miles inland. In the interior the effect of this breeze is not noted.

Diminution of Tuberculosis Death-Rate.—During the last few years there has been a very noteworthy diminution in the number of deaths from tuberculosis along the sea coast of Maine. Some five years ago the yearly deaths from this disease numbered 1352. Last

year they amounted to less than 900. This means a reduction in the mortality rate from 20 per 10,000 of the population to 14 per 10,000 of the population. Much of this improvement in the matter of tuberculosis has been brought about by a judicious spread of sanitary knowledge with regard to the prevention and early treatment of the disease. A circular stating the dangers very clearly and pointing out the precautions necessary to avoid contagion has been published by the Board of Health of the State and has been widely disseminated. Tuberculosis has dropped from the second greatest cause of death to be only the fourth in importance in this respect. Last year's statistics show in the order of fatality brain disease, pneumonia, heart disease, and tuberculosis.

Localization of Improvement.—Dr. Hinsdale said that along the coast the diminution in the number of deaths from tuberculosis has not been so marked as in the interior of the State. The only coast county in which a reduction in the number of deaths from tuberculosis is noted is York, the most westerly county, and the exposed situation acts especially unfavorably with regard to tuberculosis statistics in the more eastern counties. Pneumonia has the same death-rate to the number of population in the interior of the State as has the sea coast. This uniformity is maintained to one-tenth of one per cent. It is not, then, the unfavorable conditions for respiratory affections on the coast that cause the increased mortality from tuberculosis, although the situation is much more damp, and, in winter the moist cold is much more uncomfortable; pneumonia is neither more frequent nor more fatal.

Comparative Death-Rate of Other Diseases.—The mortality from infantile diarrhea is greater in proportion to the number of population in the interior of the State than on the coast, as might be expected. The heat itself is an important factor in the reduction of the vitality of young children, making them more liable to summer diarrhea and more prone to succumb to some fatal complication. The interior of the State receives much less benefit from the cooling sea breezes, and in the summer time there are not a few days of comparatively hot weather. The sanitary conditions along the sea coast have improved rather than deteriorated with the advent of the summer visitors that increase in number every year. There is no doubt that Maine is in the near future to be even more sought than heretofore by those looking for a stimulating, tonic and salubrious climate in the summer.

Maine Visitors.—It is calculated that more than 10,000 sportsmen visit Maine every year. This indicates one of the great attractions of Maine, the opportunities for thoroughly healthy outdoor sport that it presents to men. Fashion's fads have dictated visits to the sea coast, and over 2,000,000 visitors are said to spend some time during the summer within the State. This provides an income of over ten millions of dollars a year to the State of Maine. Away from the sea coast and even along the coast itself, in less known but very healthy locations, accommodations are not expensive. Sportsmen may obtain a place in camp in the interior for one dollar a day.

Therapeutic Climatology.—The eastern part of the State is too chilly and damp for delicate and consumptive patients and the daily variations of temperature are too brusque and trying. The Maine coast is particularly suitable for functional nervous diseases. For the overworked neurasthenic suffering from insomnia and lack of rest, no better location can be found in this country than certain places in Maine along the coast, but away from the fashionable quarters. This has come to be recognized very generally by nervous specialists throughout the East, and many such patients derive benefit from the prescription to spend some months of the summer on the coast of Maine. The climate is especially stimulating and the daily variations of temperature are very conducive to the tired feeling that gives restful sleep, soon proving better than any remedial measures that can be advised.

Oceanotherapy.—Dr. H. Holbrook Curtis said that while much has been written about the various health resorts, not enough is said about the value of sea-voyages and dwelling-places on islands and other situations along the coast that are practically in an ocean climate. The Atlantic ocean possesses as varied a climate as does the land which it touches. The Gulf Stream makes it warm and equable in many parts; the Labrador current makes it cold and blustery. European travelers who know the difference between the weather encountered in the northern and southern routes to Europe are well aware of this difference of climate. There was a time when the value of ocean air was so highly considered that persons were sent on long voyages on sailing vessels. There are very few patients in modern life, however, who stand this prescription well. There is a number of locations along the Atlantic Coast that give practically all the benefit of life at sea without its monotony and its discomforts.

Nantucket as an Ocean Resort.—Of various places along the coast Nantucket may be mentioned as the one that best fulfils the conditions for oceanotherapy. It has the least daily variation. It has very low rainfall and rejoices in a low humidity. Block Island is almost better than Nantucket in these respects. The island enjoys a climate that is quite strikingly different from that of the neighboring continental resorts, as here practically all the advantages of life at sea can be enjoyed.

Sea-Voyages.—The advantages of life at sea are the entire rest and the absolute necessity of almost living in the open air that is forced upon patients. There is besides the absence of dust, the equability of temperature, the inhalation of the saline particles that find their way into the air, together with the electrical stimulation of the ozone so plentiful at sea. Besides the moist atmosphere the ocean has that distinctly sedative effect that occurs in a moist climate with a high barometer. An added benefit is the tonic effect of a complete change from ordinary life on land. Island life possesses the sedative tonic influences of the ocean without the ennui of a long sailing voyage. These sailing voyages for therapeutic purposes should now be reserved only for dipsomaniacs and errant sons.

Children and the Sea-Coast.—Children particularly are prone to be more benefited by a prolonged stay somewhere along the sea coast in the summer than by any other set of conditions. They are tempted to play in the sand near the water for most of the day; much of their clothing is removed, their skin is exposed to the sea air and free sunlight. The air contains the iodine and bromine that is so thoroughly tonic for growing children. Delicate children in particular are apt to thrive under these circumstances. While mountain air may be praised for its salubrity, the conditions near the coast are much more prone to tempt children back to that closeness to Nature which is sure to be of decided benefit to them.

Selection of Location.—It is impossible to tell where any given individual will be most benefited; idiosyncrasy plays an important rôle in the determination of the conditions that are best suited for the individual. There are certainly no hard and fast rules by which the physician, even though he knows his patient very well, may be able to decide that he will be sure to be benefited in a certain location. Patients

themselves must be told to try certain places and report results. Often previous incidents in life and the feelings of the patient under certain climatic conditions will prove a guide as to what in all probability will be the best location for the improvement of health that is anticipated from the stay at a health resort. The more physicians learn to realize that they must individualize in this matter for each patient, the more will oceanotherapy be withdrawn from the hopeless routine of present conditions and take on some scientific exactness.

Climatotherapy for Asthma.—Dr. Beverley Robinson said that undoubtedly such a thing as pure nervous asthma does occur, that is, asthmatic symptoms without any basis of inflammatory change in the mucous membrane of the bronchi to account for the symptoms. These cases are rare, however, and usually acute or chronic bronchitis exists as the basis for the asthmatic condition. When the secretions are too copious injections of atropine form an excellent treatment and at times when disturbances of the peripheral circulation in the lungs because of spasmodic contractures of small blood-vessels occur, nitrite of amyl may be used. The most useful single drug is undoubtedly potassium iodide; it is rendered even still more efficient by combining it with Hoffman's anodyne, as is the custom in most of the hospitals in the city. The Roosevelt emphysema mixture is wonderfully efficient and hundreds of patients every year obtain the most efficient relief from its use during the trying periods of changeable weather.

Prophylaxis of Asthma.—Asthmatic attacks when severe are very exhausting and the most important part of their treatment is as far as possible to prevent them. In certain patients they occur almost regularly at certain seasons of the year, and for these a change of climate has been found a most useful method of treatment. It is a false assumption that asthmatic patients usually do better in the city than in the country; it has often been said that the irritant effects of the dust and gases of the city act rather favorably on the irritated mucous membrane. As a matter of fact there is no special spot where asthma patients are sure to do well. The same is true for the corresponding conditions of the hay-fever group; for each individual patient careful search must be made for the climatic conditions that will best agree with the individual case. When hay-fever recurs regularly and is associated with catarrhal conditions, Dr. Robinson sends his patients, if they are able to bear the expense, to Europe during the season in which their affection comes back; the change of climate and of manner of life, the novelty of the various scenes, the daily renewed interest, all form a tonic for the nervous system that gives patients the best possible relief from their symptoms.

Spa Treatment for Asthmatic Conditions.—Various watering-places are especially favorable for asthmatic conditions, but they must be by no means recommended on general principles, but must be selected with special reference to the condition of the individual patient. When patients suffer from engorged liver, Homburg is an excellent place and the waters are of such a character that they are not easily abused. The best sulphur springs for these cases are at Aix-les-Bains. It is undoubtedly true that the air around localities where sulphur springs exist is of great service in the respiratory catarrh that often exists in such cases. Here in this country Sharon Springs or Richfield Springs are useful for this purpose. It must not be supposed, however, that patients should merely be directed to go to a certain watering-place, take the waters in any quantity they wish, live according to their caprices and then expect to get better. The physician and his patient must work together and the patient must follow absolutely the directions given him. These directions should go into details.

Constitutional Treatment.—It is very important when asthmatic conditions exist, that all organs should, as far as possible, be put in order. The nose and the stomach are the most important organs from which reflex nervous impulses may originate to cause, or at least to render more severe, the symptoms of asthmatic attacks. In asthmatic cases there is nearly always some dilatation of the right heart present. As a rule, then, these cases should not be sent to very elevated localities. Damp climates are not suitable for them, and therefore, as a rule, they should not be directed to take up their residences in a lake region, or along a foggy seashore and should be advised against living in a swampy district. There are many individual idiosyncrasies in these matters, however, and at times patients will be found to suffer much less in what might seem to be an unfavorable region.

Treatment of Neurotic Conditions.—Even though asthma has for its basis some affection of the respiratory mucous membrane, its symptoms are often rendered much worse by neurotic manifestations. Hence, everything that can act as an excitant to an overwrought nervous system should be advised against. Tea or coffee, tobacco and spirits must not be permitted. The climatic influences that favor a better condition of the general nervous health must be especially insisted on. Worry and emotional strains that make the nervous manifestations worse than they were before are sure to add to the severity of the asthmatic symptoms. Patients must be advised to take sufficient hours of sleep and abundant exercise in the open air, yet this must not be of a character that will overtire them.

Asthma and Cutaneous Diseases.—It seems clear that there are often distinct relations between asthmatic manifestations and certain cutaneous eruptions. When the cutaneous symptoms are at their worst the asthma may be somewhat relieved. When, however, the cutaneous condition is improved by medication a relapse into the former asthmatic condition may occur. The climatic conditions that are good for the asthma may also prove favorable for the cutaneous eruption. These facts are to be remembered but do not make contra-indications to climatotherapy.

Surgery and Asthma.—Throat and nose specialists have often insisted that operations upon the throat and nose will afford relief for many cases of severe asthma. In Dr. Robinson's experience such operations have often seemed to do good, but not permanently. In general it may be said that neither surgery nor drugs are effective in giving lasting relief to asthmatic symptoms. The rational treatment of these conditions is by natural hygienic methods. Every physician of large experience in these matters is coming to realize the truth of this. There are no specifics and the careful arrangement of the life of the patient, under favorable conditions of climate and living conditions and absence of worry, will secure relief from asthmatic symptoms that have lasted for many years. The problem is not a simple one and relief will not come until careful study of all the conditions has enabled the physician in question to realize all the changes that may be necessary.

Climatotherapy for Neurasthenia.—Dr. Edward D. Fisher of New York said that neurasthenia is allied to hysteria and also to hypochondria. These functional conditions of the nervous system may all be influenced by suggestion. Hence, the change of life that is brought about by the removal to a new climate is often of itself an extremely effective method of treating neurasthenia. Neurasthenia represents a lowering of functional ability usually due to overstrain. Under pleasant conditions in

a favorable climate, with rest and abundance of sleep, the ideal therapeutic surroundings are obtained. The exhaustion in these cases is real, but not absolute; as the result of its presence, however, there is a loss of nervous control over all organs. The sight, the heart, the stomach, the memory, all are lowered in functional capacity. It can well be understood, then, that a vicious circle of pathological conditions is established.

High Altitudes and Neurotic Conditions.—Dr. Fisher said that no general rules can be laid down with regard to the localities that may be most suitable for special forms of nervous trouble. Individuals must be carefully studied in order to determine what localities may prove most suitable for them. Not only must the patients' physical condition be studied, but also their habits and tastes must be consulted, so that they may be contented in their surroundings. In very high altitudes many nervous symptoms are prone to be increased. Especially is this true if cardiac irregularities exist and if they form a prominent feature of the nervous trouble. It must not be forgotten that it is a rather common experience in very high altitudes in the West for even normal women to live continuously at a high elevation when they have been brought up at lower elevations. Many Eastern women who go to the West to live must return to the East at least once in two years.

Mental Satisfaction and Health.—With regard to the treatment of neurasthenics by change of climate it must never be forgotten that in the midst of ennui and tedium all efforts to regain health are vain. Certain health resorts that have systematic regulations for patients yield much better results for nervous patients than others. When the duties of the day are marked out absolutely there is much less time for introspection and the suggestive influence of symptomatic conditions that have only a slight existence in reality is diminished. A long sea-voyage should be recommended only when it is well known that the patient is a good sailor and enjoys the sea very much. Men who will not forget their old cares worry more and more and their surroundings at sea become irksome.

The Isle of Wight.—For all the benefit of oceanotherapy and yet the human interest of the shore and a change of climate and locality that proves delightfully tonic, the Isle of Wight makes, according to Dr. Fisher's experience, an excellent prescription. For patients who are not delicate and who need a more bracing climate the northern part of Scotland or even the Shetland or Orkney Islands may be recommended. It is always better to avoid sending nervous patients to fashionable resorts where there are many people, and especially where there are people with similar ailments who talk constantly about them and exaggerate their symptoms while detailing them and listening to those of others.

Mountain or Sea-Coast.—It is always a problem whether a patient shall be sent to the mountains or the sea-coast. Extremes of heat and cold must be avoided. In summer the Maine coast, or the mountain regions in the interior of Maine, may prove excellent. The climate of Canada is very much like that of Maine. The patients are apt to have a quieter time because there are not so many summer visitors. It may be that a number of trials will have to be made before the most suitable locality is found for an individual patient. It may be true that at different seasons of the year different localities will have to be recommended; for neurasthenia runs a prolonged course and will take a long time to improve. It is important that wherever patients go they must pay persistent attention to hygienic rules. There must be no staying up late at night, no irregular eating, no tendencies to dissipation, and as far as possible, no temptations to over-exertion.

Mineral Springs of the United States.—Dr. James K. Crook read a paper containing a brief account of the principal mineral springs in this country. He said that with one exception the mineral springs in the United States contain mineral ingredients that are stronger for therapeutic purposes than those of any part of the world. One class of mineral waters is not so strong in this country as in Europe; these are the sulphated salines of which we have none to compare with the Hunyadi Janos, the Rubinat or the Apenta. The famous springs, such as those at Carlsbad and at Wiesbaden or at Homburg, are better represented in this country than abroad. As a rule, the hotels in this country are better, yet every year there is a hegira to Europe to visit watering-places.

Neglect of the American Mineral Springs.—The principal reason for the neglect of American mineral waters is ignorance of their therapeutic quality. This is due primarily to the fact that our professors of therapeutics in this country know very little and teach less of the value of American mineral waters. Abroad the subject of climatotherapy and balmeotherapy are taken much more seriously than here. In America the precious physical therapeutic measures are unfortunately neglected. There is not a university in this country that teaches these subjects and as a result the graduates must learn about the mineral springs of the country from more or less quackish circulars. This is exactly as it should not be. Not only should our American feeling of patriotism prompt us to know something of the resources of our country and its history, but our devotion to the cause of American medicine should bring us to realize how much value American mineral waters may be in the treatment of disease.

Daily Regime.—One of the most potent factors for the attainment of therapeutic results at foreign spas is undoubtedly the regular daily life that is laid out for patients who come to take the waters. Here in this country no such régime is established, the waters are taken at the whim of the patient, and hence little benefit is obtained. The patients seem to think the only rule necessary to keep as full as possible of the mineral water, confident that this must work wonders. Needless to say no such results are obtained in this country as at Carlsbad or at Homburg. The change of scenery, the absence of dust, etc., do good, but if the patients were directed to mineral springs with more knowledge of what was properly suited to them and with letters to the physicians resident at the springs, then the benefits to be derived from this form of therapeutics would soon be recognized here in America.

Therapeutic Influence of Climate Real.—Dr. L. Faugères Bishop said that the influence of climate or diseased conditions is something more than merely change of scene. The bodily sensation at the seaside is first restful and sleep-producing, and then, by a sort of reaction, exhilarating. As a consequence, rest is very much encouraged during the first days of seaside residence. With regard to climate and asthma it may be said that the patient must, as a rule, find out for himself, or herself, what is the most suitable locality. There are no cut and dried directions that can help the physician in the selection of a location. For nephritis the selection of a climate is not easy, though it must be borne in mind that the principal desideratum in the disease is to keep the skin actively at work to relieve the kidneys; and for this a climate in which there are very slight changes of temperature during the day, is very favorable. For neurasthenic patients summer tent-life is very favorable, and this is true also for the tuberculous. As a rule patients should not be brought suddenly from one climate to another, but the transition

should be gradual. Patients also should not be permitted to hurry back to their old occupations and surroundings as soon as they feel better. Old people, as a rule, do very well, if, according to the old tradition, they are sent back to the climate of their childhood. The early adaptation of the organism to these climatic influences seems to make it most favorable for them in declining years.

Failure of United States Mineral Springs.—Dr. Simon Baruch said that the keynote of the failure of United States mineral springs is the lack of knowledge of the medical men of the country with regard to American mineral waters. It is not climate, but the management of patients in the climate that makes successful climatotherapy. Patients are not infrequently sent to most undesirable localities, as, for instance, sick children to hotels at the seashore where their parents are unable to provide for them as they would at home.

Dr. Knopf said that one of the things most needed in America is seaside sanatoria for tuberculous children. There is not a single one in this country, and there are thirty-eight with schools attached to them in France. This is a philanthropic movement of the most charitable kind that should be taken up.

BOOK REVIEWS.

TRANSACTIONS OF THE AMERICAN PEDIATRIC SOCIETY. Thirteenth Session, held at Niagara Falls, N. Y., May 27, 28 and 29, 1901. Edited by WALTER LESTER CARR, M.D. Volume XIII. Reprinted from Archives of Pediatrics, 1901.

THERE are in this volume a number of extremely practical and important papers on the general subject of children's diseases. Some of the titles give an idea of the value of the contents. The President's Address was on the early history of the summer diarrhea of infants. There is a study of 555 cases of summer diarrhea among the out-patient poor, by Charles Gilmore Kerley. There is a very thorough and informing analysis of thirty-two cases of congenital heart disease by John Lovett Morse. Dr. Jacobi of New York treats the subject of milk sugar in infant-feeding, while Dr. Francis Huber discusses infantile scurvy and marasmus. Dr. L. Emmett Holt has three articles, all of very special interest. One is the report of a case of high temperature of three months' duration as the result of double sacculated empyema, situated on one side of the diaphragmatic surface of the lung. Another is a note on the treatment of gastro-intestinal hemorrhage in the new-born by suprarenal extract and a third is on diphtheria of the conjunctiva treated by antitoxin. It is evident that the book should be in the library of all those especially interested in children's diseases.

THE NEUROSES OF THE GENITO-URINARY SYSTEM IN THE MALE, WITH STERILITY AND IMPOTENCE. By Dr. R. ULTZMANN, Professor of Genito-urinary Diseases in the University of Vienna. Second Edition. Revised by GARDNER W. ALLEN, M.D., Surgeon in the Genito-urinary Department of the Boston Dispensary; Instructor in Genito-urinary Surgery in Tuft's Medical College. F. A. Davis Co., Philadelphia.

ULTZMANN'S well known reputation for conservative thinking and practical observation in diseases of the genito-urinary tract are a sufficient guarantee that the present little book is a valuable one. The neuroses of the genito-urinary system in the male and the questions of sterility and impotence are treated in a way that can not but prove suggestive to those who have such cases to treat. The translator's supplementary article on nervous impotence is worthy of a place besides Ultzmann's essays, and this is of itself as high praise as could well be given it. The translation is admirably done and the little book well deserves a place in the library of at least the genito-urinary specialist.

DISEASES OF WOMEN. A MANUAL OF GYNECOLOGY. Designed Especially for the Use of Students and Practitioners. By F. H. DAVENPORT A.B., M.D., Assistant Professor of Gynecology in the Harvard Medical School. Fourth Edition. Lea. Brothers & Co., New York and Philadelphia.

THE fact that this book has already been through three editions should show that it has firmly established its merits. It is designed as a manual, and it is no more. Hence, it is brief but concise.

Few writers seem to realize as Dr. Davenport has the necessity of making clear the so-called minor points. This is shown in the chapter on the technic of treatment of uterine displacements by the pessary. Most text-books treat this as of no importance and take it for granted that the use of the pessary is something to be learned by intuition.

The illustrations are sufficient for a work of its scope, but a trifle too schematic and diagrammatic.

THE PRACTICAL MEDICINE SERIES OF YEAR BOOKS. Comprising Ten Volumes on the Year's Progress in Medicine and Surgery, Issued Monthly. Volume VI. General Medicine. Edited by FRANK BILLINGS, M.S., M.D., Head of Medical Department and Dean of the Faculty of Rush Medical College, Chicago, with the Collaboration of S. C. STANTON, M.D., May, 1902. The Year Book Publishers: Chicago.

So many reviews of reviews of medicine in its various departments and specialties are now being issued that the practitioner must find his choice hampered by an embarras de richesses. The practical medicine series, however, is certainly a very handy compendium of progress in various lines and has the advantage of not requiring that a medical man shall purchase more than just the review of the branch in which he is particularly interested.

The present volume is very well put together. The chapters on typhoid fever, on malaria and on diseases of the liver, of the stomach and of the intestines are very complete, considering the extent of the literature that has to be reviewed and the condensation required. The volume will find a place for itself even in the present crowded state of our literature.

BOOKS RECEIVED.

The MEDICAL NEWS *acknowledges the receipt of the following new publications. Reviews of those possessing special interest for the readers of the* MEDICAL NEWS *will shortly appear.*

DISEASES OF THE INTESTINES. By Dr. John C. Hemmeter. Vol. II. 8vo, 679 pages. Illustrated. P. Blakiston's Son & Co., Philadelphia.

MEDICAL AND SURGICAL REPORT OF THE PRESBYTERIAN HOSPITAL IN THE CITY OF NEW YORK. Vol. V. Edited by Drs. A. J. McCosh and W. G. Thompson.

A MANUAL OF OTOLOGY. By Dr. Gorham Bacon. Thirtieth Edition. Demi 8vo, 445 pages. Illustrated. Lea Brothers & Co., New York and Philadelphia.

LEHRBUCH DER KLINISCHEN OSMOLOGIE ALS FUNKTIONELLE PATHOLOGIE UND THERAPIE. Von H. Zikel. 8vo, 418 pages. Illustrated. Fischer's Medic. Buchhandlung H. Kornfeld, Berlin.